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# FRAMINGHAM

# STUDY

An Epidemiological Investigation

of

Cardiovascular Disease

Section 31

## The Results of The Framingham Study Applied to Four Other U.S.-Based Epidemiologic Studies of Cardiovascular Disease

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service     National Institutes of Health

National Institutes of Health
Bethesda, Maryland 20014

# THE FRAMINGHAM STUDY

## An Epidemiological Investigation of Cardiovascular Disease

Editors: William B. Kannel, M.D., and Tavia Gordon

## Section 31. The Results of The Framingham Study Applied to Four Other U.S.-based Epidemiologic Studies of Cardiovascular Disease

Daniel McGee and
Tavia Gordon

April 1976

National Heart and Lung Institute

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# THE POOLING PROJECT

Albany Cardiovascular Health Center Study

- Joseph T. Doyle
- Sandra H. Kinch
- Phillip Quickenton

Chicago Peoples Gas Company Study

- Jeremiah Stamler
- David M. Berkson
- Howard A. Lindberg
- Wilda A. Miller
- Elizabeth Stevens

Chicago Western Electric Company Study

- Ogelsby Paul
- Mark H. Lepper
- Harlley McKean
- William H. Phelan

Framingham Heart Disease Epidemiology Study

- William B. Kannel
- Thomas R. Dawber
- William P. Castelli
- Patricia M. McNamara
- H. Emerson Thomas
- Philip Wolf

Los Angeles Heart Study

- John Chapman
- E. Ray Borun
- Anne H. Coulson
- Frank J. Massey Jr.

Minneapolis Professional and Business Men and U.S. Railroad Workers Studies

- Ancel Keys
- Henry Blackburn
- Henry Taylor

Tecumseh Study

- Fred M. Davenport
- Frederick H. Epstein
- Thomas Francis Jr.
- Marcus O. Kjelsberg
- John A. Napier
- Betty M. Ullman

Coordinating Center

- Frederick H. Epstein
- Felix E. Moore
- Robert Boardman
- Wendy J. Carman
- Thomas M. Karunas

The Pooling Project, a cooperative epidemiological study of cardiovascular disease, provides an unusually appropriate group of prospective studies to test the general applicability of the findings of the Framingham study on the relationship of major risk factors to coronary heart disease and death. Specifically, does a multiple logistic risk function using coefficients calculated from the Framingham experience predict outcome for other populations in the Pooling Project? This report in the Framingham monograph series, a joint effort of the Pooling Project and its Principal Investigators, presents data reflecting on this question.

In addition to Framingham, the four other U.S. based epidemiologic studies of cardiovascular disease included in the comparisons are: the Albany Cardiovascular Health Center Study, Dr. Joseph T. Doyle director; the Chicago Peoples Gas Company Study, Dr. Jeremiah Stamler, director; the Chicago Western Electric Company Study, Dr. Oglesby Paul, director; and the Tecumseh Study, Drs. Fred M. Davenport and Frederick H. Epstein, directors (Table 1) (1-4). The Pooling Project was served by a coordinating center at the School of Public Health, University of Michigan, under the leadership of Professors Frederick H. Epstein and Felix E. Moore (5).

Three other studies were included in the Pooling Project. These were the study of Minnesota Professional and Business Men, Prof. Ancel Keys and Dr. Henry Blackburn, directors (6), the Los Angeles Heart Study (7), Dr. John M. Chapman, director, and the U.S. Railroad Workers Study, Dr. Henry L. Taylor, director (8). Since data from these studies were not available to us in exactly comparable form to Framingham's they are not included in this report.

Only data for men age 40-54 are included, since only this age range is adequately represented within all the studies (Table 2). The risk factors considered in the multivariate analysis are: serum cholesterol, blood pressure (diastolic and systolic considered separately) and cigarette usage. Three endpoint events are considered: myocardial infarction or CHD death (heart attacks), death from all causes, and CHD death.

It is concluded that the multiple logistic risk function based on the Framingham findings predicts the incidence rates for the three events for each of the other four studies quite well, despite some inter-study differences in distributions of the risk factors and in the relative importance of the risk factors in predicting events. This analysis reinforces the conclusion that the results of the Framingham Study are widely generalizable to white middle-aged American men and can be used with confidence by both health planners and medical practitioners. The results also provide further evidence of the utility of a multiple risk factor approach in predicting cardiovascular disease.

## THE POOLING PROJECT

In 1964 the Principal Investigators of the then most firmly established prospective epidemiologic studies of cardiovascular disease met and agreed to collaborate and pool their data. This meeting was an outcome of discussions on the uniformity of data measurement in investigations of cardiovascular disease (9, 10), and the possibility of pooling data in order to obtain a larger data base than could be offered by any one study.

In its initial endeavors, the Pooling Project collected data from all the studies in standardized form, assessed the "poolability" of the results, utilized the data for several initial reports and studies (5, 11-15) and carried out extensive analysis of pooled data for a definitive monograph. The purpose of this report is somewhat simpler, i.e., to ascertain how well the results of the Framingham Study apply to other populations. This can be done securely only because of the careful and extensive work by the Pooling Project and its coordinating center in evaluating and standardizing data from the various studies.

The data used in this report are from five of the studies involved in this project. These all began within the twelve-year period from 1948 to 1959. The populations sampled as well as the sampling methods differed among the studies (Table 1). The Pooling Project accepted data from each study on all white males free of clinical evidence of definite coronary heart disease at initial examination.

Numbers of such men are given in Table 2. As already noted, this report deals only with men age 40-54 at entry -- an age range yielding sizeable numbers of men from each of the five studies. Because of the age restriction this report will not be directly comparable to the final report of the Pooling Project.

## RISK FACTORS

In each of the studies blood pressures were obtained using a mercury sphygmomanometer. The participant was sitting in four of the studies and supine in one. The pressures reported to the coordinating center were the first recorded by a physician. Systolic was at the point of appearance and diastolic at the point of disappearance of Korotkoff sounds.

In each of the studies serum cholesterol was measured from a casual specimen using the Abell-Kendall method (16).

Height and weight were measured without shoes and in underclothes in four of the studies, and with shoes and indoor garments in the other. The measurement with shoes and indoor clothes adds approximately 1 inch and 5 pounds to a person's height and weight. This should have almost no impact on relative weights since a gain of 1 inch and 5 pounds leaves a person's relative weight almost unchanged. Relative weight is a ratio, expressed in percent, of a person's weight to a standard weight for a person of his height. It was calculated by the coordinating center from standards derived from "desirable" weights by height published by the Metropolitan Life Insurance Company (17).

All of the studies obtained information on current and past smoking habits. These were supplied to the coordinating center and were recoded:

0 - never smoked
1 - past smoker
2 - cigar or pipe smoker
3 - smokes less than 1/2 pack of cigarettes per day
4 - smokes about 1/2 pack per day
5 - smokes about 1 pack per day
6 - smokes more than one pack per day

Table 3 gives a summary of the method of measurement of variables, by study.

## INCIDENT EVENTS

Three incident events are considered in this monograph:

1) Myocardial infarction or CHD death
2) Death for all causes
3) CHD death

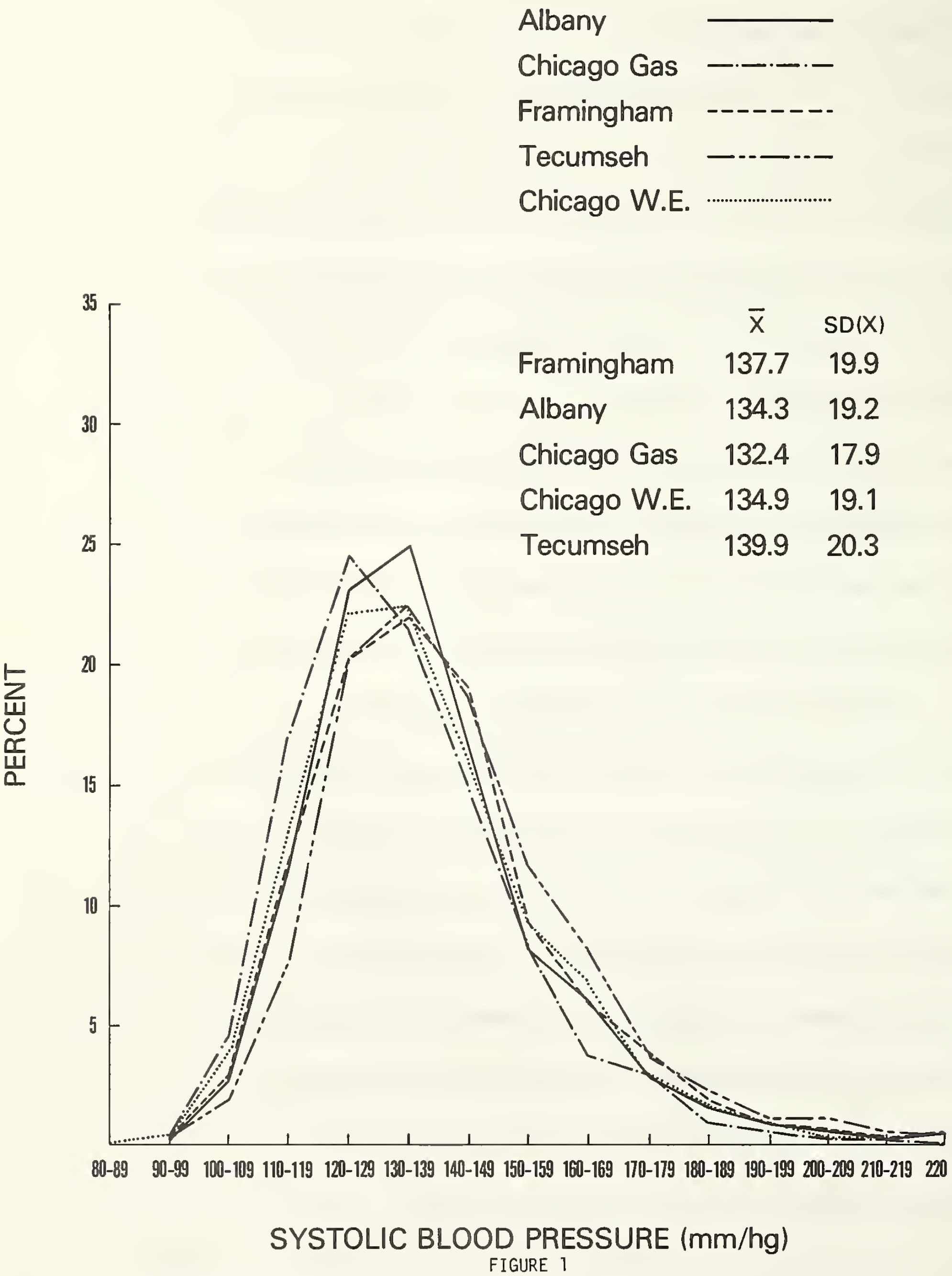
Events during the years following initial examination were reported to the coordinating center of the Pooling Project by each of the studies. The average length of follow-up ranged from 8.05 to 11.50 years, Framingham having the longest experience (Table 1). Events were coded by the coordinating center using the following criteria:

Myocardial Infarction: Definite myocardial infarction required definite electrocardiographic changes in a single tracing or evolutionary changes documented on serial tracings, in particular, development of definite Q or QS waves as described by Minnesota Code category I, class I, as well as some other definite ECG changes not quite meeting this strict criterion(18). Review of ECGs for this diagnosis was done at the University of Minnesota under the supervision of Henry Blackburn, M.D., on ECGs supplied by the respective studies.

Death: In every death of a study participant the death certificate was reviewed to establish both time and underlying cause of death. The underlying cause of death was uniformly coded at the coordinating center using the seventh revision of the International Statistical Classification. Insofar as possible the cause of death was verified by reviewing autopsy data, hospital records, and records of attending physician.

CHD Death: CHD death included both deaths where CHD was clearly documented as the cause and sudden deaths occurring within three hours of onset of symptoms in persons in apparent good health without previously known cardiovascular disease and without evidence of violence, trauma or other possible non-cardiovascular causes.

# DISTRIBUTION OF SYSTOLIC BLOOD PRESSURE (mm/hg) BY STUDY



| | $\overline{X}$ | SD(X) |
|---|---|---|
| Framingham | 137.7 | 19.9 |
| Albany | 134.3 | 19.2 |
| Chicago Gas | 132.4 | 17.9 |
| Chicago W.E. | 134.9 | 19.1 |
| Tecumseh | 139.9 | 20.3 |

FIGURE 1

## FINDINGS

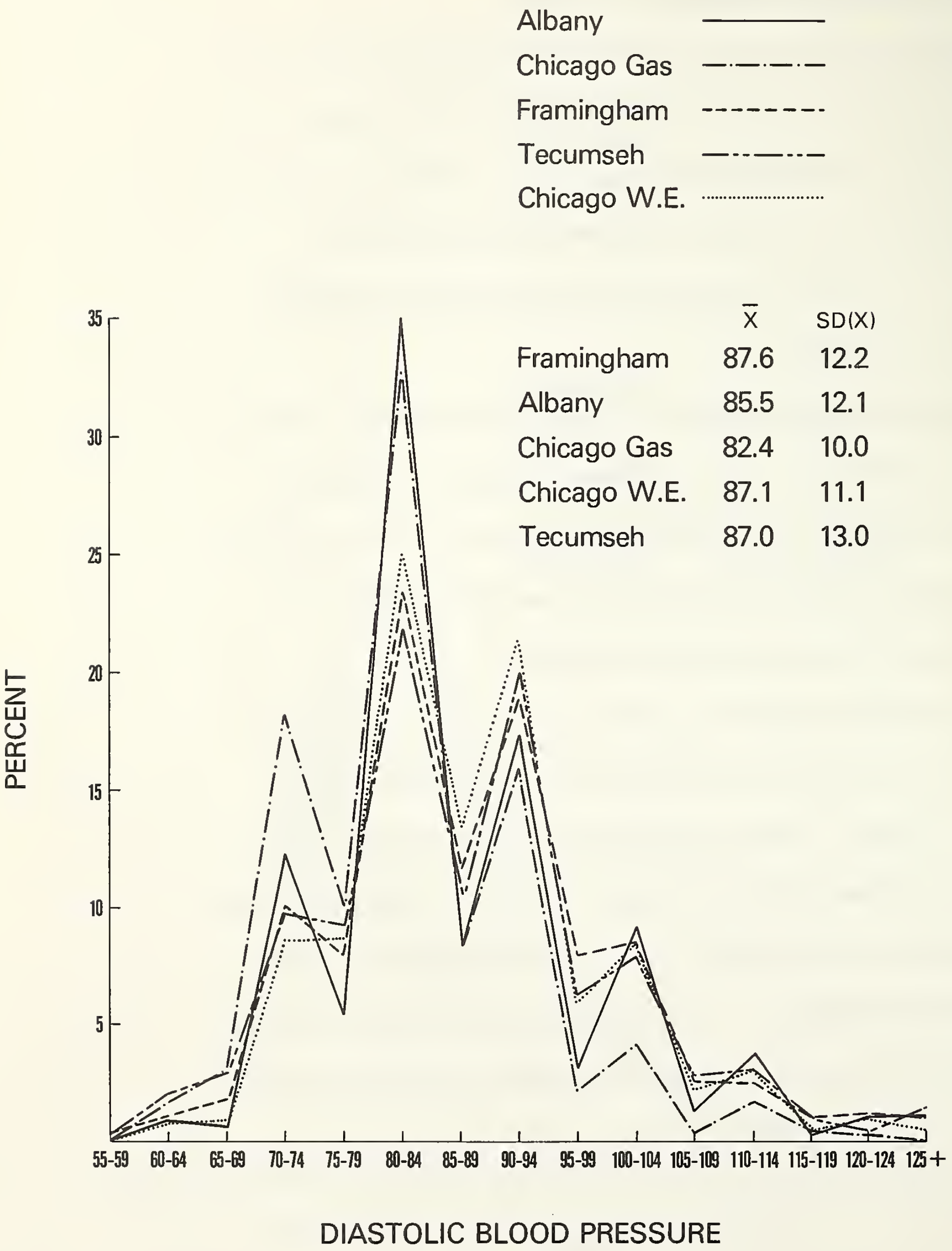
### Risk factor and incidence findings by study

Framingham data fall in the middle of the distributions of the major risk factors for these study populations (Figs. 1-3 and Tables 4, 5). The jagged shapes of the curves for diastolic blood pressure are due to digit bias in obtaining these values (Fig. 2). These irregularities should have no impact on the logistic regressions.

Table 5 gives mean values and standard deviations for the risk factors considered, as well as age. Again, Framingham has neither the highest nor lowest mean values, with the single exception of serum cholesterol where it has the lowest value. All of the standard deviations are comparable.

Table 6 gives the numbers of persons at risk and the numbers of events by study, with and without exclusions due to missing data. Table 7 gives extrapolated 12 year event rates by study. The extrapolation is linear and it is recognized that this may slightly underestimate levels of incidence for the studies of shorter duration. The Framingham incidence rates for total mortality, heart attacks in general and CHD mortality

# DISTRIBUTION OF DIASTOLIC BLOOD PRESSURE BY STUDY

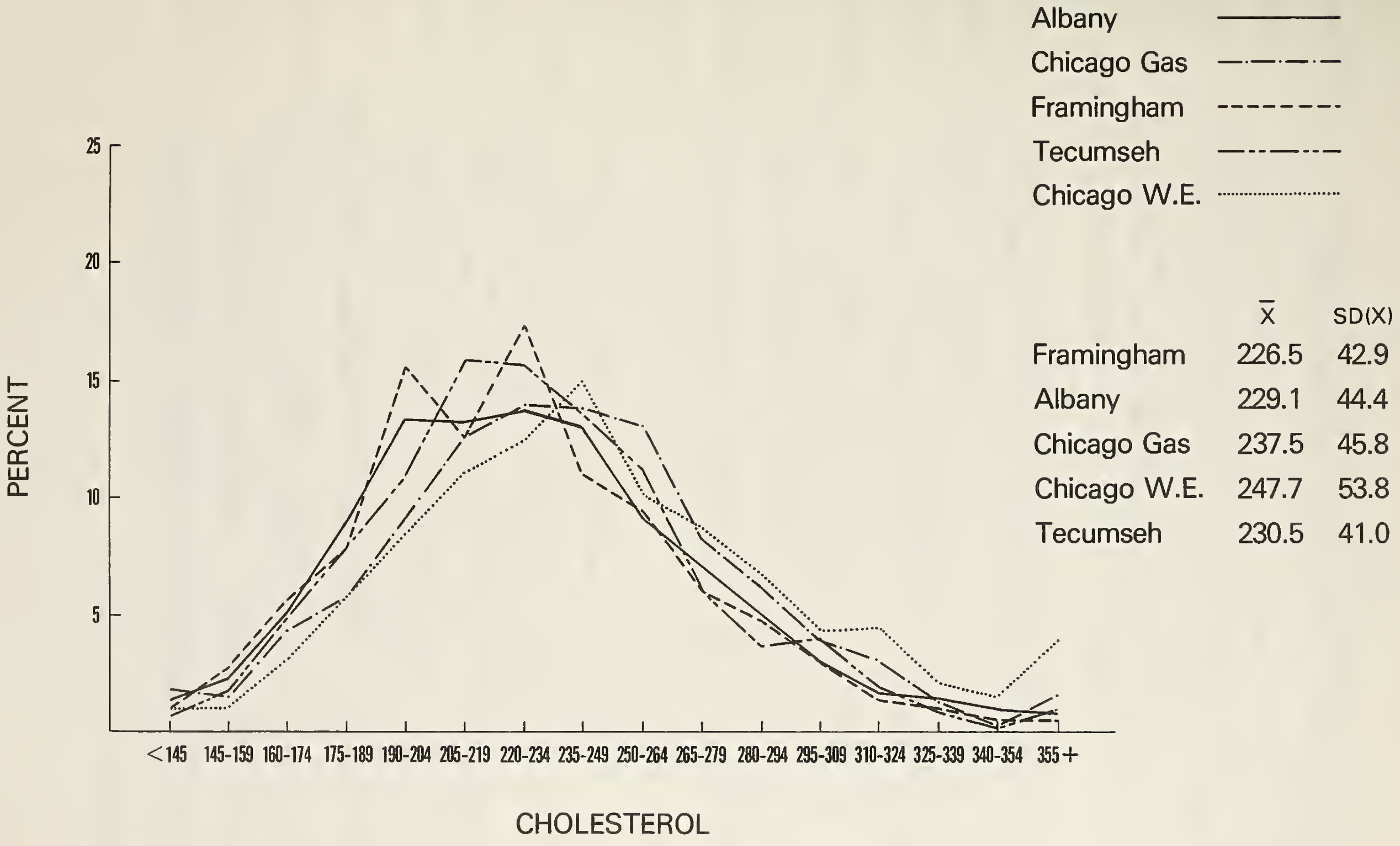


|  | $\overline{X}$ | SD(X) |
|---|---|---|
| Framingham | 87.6 | 12.2 |
| Albany | 85.5 | 12.1 |
| Chicago Gas | 82.4 | 10.0 |
| Chicago W.E. | 87.1 | 11.1 |
| Tecumseh | 87.0 | 13.0 |

FIGURE 2

FIGURE 3

# DISTRIBUTION OF CHOLESTEROL (mg/1,000ml) BY STUDY



|  | $\bar{X}$ | SD(X) |
|---|---|---|
| Framingham | 226.5 | 42.9 |
| Albany | 229.1 | 44.4 |
| Chicago Gas | 237.5 | 45.8 |
| Chicago W.E. | 247.7 | 53.8 |
| Tecumseh | 230.5 | 41.0 |

in particular are neither the highest nor the lowest.

Tables 8-12 give the number of persons, number of events and 12 year rates by level of each risk factor. Here once again Framingham generally has neither the highest nor lowest rates.

Tables 13-15 give the risk factor averages for cases and non-cases and their respective standard deviations for each of the three events. Since the standard deviations are comparable among the studies, comparisons between studies of the strength of any individual risk factor can be made directly, using the differences between the averages for cases and non-cases of the specified events.

The analytic meaning of these data can best be judged from tables 16-18 which give the complete univariate logistic analyses for each study by event and risk factor, and by the summary in table 28, which gives the standardized univariate logistic coefficients for each study. The Tecumseh coefficient for serum cholesterol is significantly different from that of Framingham for all three events. Otherwise the Framingham coefficients are not significantly different (statistically) from those of the other studies.

### Use of Framingham coefficients to predict event rates of the four other studies.

In order to assess how well results from Framingham can be applied to the other studies to predict the events being considered, the Framingham experience was used to estimate the parameters of a multiple logistic function. This was done for two sets of major risk factors:

(1) systolic blood pressure, serum cholesterol, and smoking.

(2) diastolic blood pressure, serum cholesterol, and smoking.

Age is not entered into the multivariate logistic as a variable despite the fact that age distributions for the various studies are not the same. Mean ages within the limited age span under investigation (40-54 years) are given in table 5 and it is obvious from these and from the age-adjusted incidence rates in table 7 that differences in age distribution have a small but discernible impact on incidence rates. However, it was felt that if a term for age was included in the multiple logistic functions concordance between the study results might have been attributed to this term rather than to the terms for serum cholesterol, cigarette smoking and blood pressure.

Estimates for the parameters were used to calculate predicted risk scores (conditional probabilities of the event) for participants in each of the other studies. Two criteria were used for judging how well the Framingham results predicted outcomes in the other populations: goodness of fit statistics (table 30) and percent of observed cases in the uppermost decile of predicted risk (table 31). By either criterion the Framingham logistic functions did quite well in predicting the experience of these other populations.

*It seems reasonable to conclude that the Framingham experience is typical of the experience of these other studies*.

## ADDENDUM: OTHER RISK FACTORS AND ENDPOINTS

Three other risk factors are logical candidates for inclusion in any predictive formulas. One, included in the univariate presentation in the main body of tables, is relative weight. As may be seen from the data in table 16, even for myocardial infarction or CHD death relative weight is not a statistically significant risk factor for 3 of the 5 studies; hence it seemed illogical to include it in the various multivariate essays at prediction.

Another risk factor omitted is glucose intolerance. Blood glucose data were not available at entry for the Albany and the two Chicago studies, and hence glucose intolerance was not included in these analyses.

A final omission from the roster of common risk factors were electrocardiographic abnormalities. These differed from the other characteristics in that they indicate already existing cardiac pathology and were omitted on that account.

Several other endpoints were included in the pooled data. These included angina pectoris, intermittent claudication and stroke. Since it was impossible to standardize the reports from the separate clinics for these events they are not included in this report.

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2. Number of men by age at entry and study.
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14. Means and standard deviations of risk factors for cases and non-cases of death from all causes.

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32. Number of persons by ECG status.
33. Standardized univariate and multivariate logistic coefficients for ECG abnormalities.

Where further description of the tables or explanations of methods are given, they are found in notes preceding the tables. See footnotes of the table in question for the exact location.

Table 1

Description of the Studies

| Study | Year Begun | Population Sample |  | Average Length of Follow-up,Years | Principal investigators Director |
|---|---|---|---|---|---|
|  |  | Type | Size |  |  |
| Framingham | 1948 | Probability sample Pop. Fram., Mass. 30-62 yrs old | 2,193 | 11.50 | W.B. Kannel, M.D.<br>T.R. Dawber, M.D. (Ret.) |
| Albany | 1953 | Civil Servants 39-54 yrs old | 1,823 | 9.86 | Joseph T. Doyle, M.D. |
| Chicago Peoples Gas Company | 1958 | Male Employees of People's Gas, Light and Coke Co. 40-59 yrs old | 1,264 | 9.71 | Jeremiah Stamler, M.D. |
| Chicago Western Electric | 1957 | Male Employees Western Electric Company 40-55 yrs old | 1,983 | 8.52 | Oglesby Paul, M.D. |
| Tecumseh | 1959 | Total community | 1,240 | 8.05 | Fred M. Davenport, M.D.<br>Frederick H. Epstein, M.D. (Ret.) |

The Principal Investigators for the Pooling Project were Professors Frederick H. Epstein and Felix E. Moore of the University of Michigan.

Note: The length of follow-up for a participant was calculated as the time from his initial examination until the date of last contact if he was alive at the end of the follow-up period, or the date of death if he died during this time. The above averages were calculated using participants of all ages.

## Table 2

Number of men by age at entry and study

| | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55+ | Total |
|---|---|---|---|---|---|---|---|
| Framingham | 380 | 438 | 414 | 350 | 353 | 258 | 2193 |
| Albany | - | 56 | 675 | 643 | 436 | 13 | 1823 |
| Chicago-Gas | - | - | 282 | 295 | 359 | 328 | 1264 |
| Chicago-W.E. | - | 2 | 590 | 646 | 632 | 113 | 1983 |
| Tecumseh | 250 | 298 | 211 | 200 | 162 | 119 | 1240 |

Table 3

METHODS OF MEASUREMENT OF VARIABLES

| STUDY | BLOOD PRESSURE | SERUM CHOLESTEROL | HEIGHT | WEIGHT | CIGARETTE SMOKING HISTORY |
|---|---|---|---|---|---|
| Framingham Cardiovascular Study | Participant sitting | Casual, non-fasting Abell-Kendall | without shoes | underclothes, without shoes | number of packs smoked/daily at time of exam. |
| Albany Cardiovascular Study | Participant sitting | Casual, non-fasting Abell-Kendall | without shoes | underclothes, without shoes | lifetime history plus number smoked daily at time of exam. |
| Chicago Peoples Gas Company | Participant sitting | Casual, non-fasting Abell-Kendall | with shoes | indoor clothes, with shoes | number of packs smoked daily at time of exam. |
| Chicago Western Electric | Participant supine | Casual, non-fasting Abell-Kendall | without shoes | underclothes, without shoes | lifetime history plus number smoked daily at time of exam. |
| Tecumseh Study | Participant sitting | Casual, non-fasting Abell-Kendall | without shoes | underclothes, without shoes | lifetime history plus number smoked daily at time of exam. |

## Table 4

Percent of population with specified smoking habits

| SMOKING HABIT | (F) | (A) | (C-G) | (CW) | (T) |
|---|---|---|---|---|---|
| Never | 12.5 | 17.7 | 12.1 | 19.8 | 13.4 |
| past | 9.6 | 11.4 | 14.8 | 12.1 | 14.4 |
| Cigar or pipe | 13.9 | 14.2 | 8.4 | 9.6 | 8.8 |
| < 1/2 pack | 7.0 | 4.5 | 3.0 | 5.3 | 4.9 |
| 1/2 pack | 9.6 | 4.3 | 5.6 | 9.6 | 9.5 |
| 1 pack | 29.4 | 26.6 | 37.5 | 37.4 | 26.4 |
| > 1 pack | 18.0 | 21.3 | 18.5 | 6.2 | 22.5 |

(F) Framingham

(A) Albany

(C-G) Chicago-Gas

(CW) Chicago-Western Electric

(T) Tecumseh

## Table 5

Mean values and standard deviations of specified risk factors

| | Framingham | | Albany | | Chicago-Gas | | Chicago-W.E. | | Tecumseh | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| SBP | 137.7 | 20.1 | 134.3 | 19.3 | 132.4 | 18.0 | 134.9 | 19.1 | 139.9 | 20.3 |
| DBP | 87.6 | 12.2 | 85.5 | 12.2 | 82.4 | 10.0 | 87.1 | 11.1 | 87.0 | 13.1 |
| Chol | 226.5 | 42.9 | 229.1 | 44.1 | 237.5 | 45.7 | 247.7 | 53.6 | 230.5 | 40.4 |
| Rel/wt | 116.9 | 15.3 | 114.1 | 15.6 | 121.1 | 16.3 | 115.3 | 14.6 | 119.1 | 17.7 |
| Smoking* | 3.5 | 2.1 | 3.3 | 2.2 | 3.6 | 2.1 | 3.1 | 2.1 | 3.5 | 2.2 |
| Age | 46.7 | 4.4 | 46.2 | 4.1 | 47.4 | 4.2 | 47.2 | 4.1 | 46.3 | 4.3 |

Note: The numbers of persons used to calculate these statistics is the number of persons with known values of the specified risk factors. These numbers may be obtained from tables 8-12.

*Note coding rules in text; this is an average of these codes, not of the number of cigarettes smoked per day.

Table 6

No. of persons and number of events by study with and without exclusions

| | | (1) | | | (2) | | | (3) | | | (4) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (A) | (B) | (C) | (A) | (B) | (C) | (A) | (B) | (C) | (A) | (B) | (C) |
| Framingham | 1117 | 1089 | 1089 | 126 | 123 | 123 | 130 | 123 | 123 | 59 | 57 | 57 |
| Albany | 1754 | 1675 | 1675 | 155 | 142 | 142 | 152 | 133 | 133 | 65 | 53 | 53 |
| Chicago-Gas | 936 | 934 | 934 | 93 | 93 | 93 | 101 | 101 | 101 | 44 | 44 | 44 |
| Chicago-W.E. | 1868 | 1806 | 1804 | 130 | 127 | 127 | 123 | 118 | 118 | 61 | 59 | 59 |
| Tecumseh | 573 | 563 | 564 | 36 | 35 | 35 | 43 | 42 | 42 | 27 | 26 | 26 |

(1) Number of persons
(2) Number of myocardial infarctions or CHD deaths
(3) Number of deaths from all causes
(4) Number of CHD deaths

(A) No exclusions
(B) Excluding anyone with any of systolic blood pressure, cholesterol, or smoking habit unknown.
(C) Excluding anyone with diastolic blood pressure, cholesterol, or smoking habit unknown.

## Table 7

Rate per 1000 for 12 years* by study

---

| | CRUDE | | | AGE ADJUSTED** | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (1) | (2) | (3) |
| Framingham | 113 | 116 | 53 | 113 | 116 | 53 |
| Albany | 103 | 101 | 43 | 100 | 106 | 45 |
| Chicago-Gas | 118 | 128 | 56 | 115 | 118 | 53 |
| Chicago-W.E. | 94 | 89 | 44 | 91 | 84 | 42 |
| Tecumseh | 90 | 107 | 67 | 92 | 111 | 70 |

(1) Myocardial infarction or CHD death

(2) Death all causes

(3) CHD death

*Adjusted for length of follow-up. See notes on tables preceding table 8.

**Age-adjustment was made as follows: Crude rates were calculated for age groups 40-44, 45-49, 50-54. The crude rates within each age group were modified for length of followup as described in notes on tables preceding table 8 and age-adjusted by the direct method using the Framingham population as the standard.

## ADJUSTMENT OF RATES

The studies reported a varying length of follow-up (table 1). In order to compare rates all are expressed as 12 year rates. 12 year rates are calculated by multiplying the rates for a given study by the ratio of the Framingham follow-up and the study follow-up. For example Albany rates are multiplied by 11.5/9.86. Since incidence rates tend to increase with age a linear extrapolation will tend to underestimate incidence.

TABLE-8
NUMBER OF PERSONS AND NUMBER OF SPECIFIED EVENTS BY
LEVEL OF SYSTOLIC BLOOD PRESSURE (MM HG).

| | FRAMINGHAM | | | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBP | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| <110 | 38 | 2 | 3 | 1 | 47 | 5 | 4 | 4 | 44 | 3 | 4 | 2 | 81 | 2 | 4 | 1 | 14 | 1 | 1 | 1 |
| 110-119 | 132 | 7 | 7 | 1 | 201 | 17 | 11 | 3 | 159 | 8 | 12 | 3 | 242 | 12 | 16 | 7 | 43 | 3 | 5 | 3 |
| 120-129 | 226 | 23 | 18 | 10 | 403 | 27 | 20 | 9 | 230 | 25 | 17 | 9 | 414 | 25 | 20 | 10 | 115 | 3 | 3 | 2 |
| 130-139 | 247 | 26 | 26 | 10 | 437 | 36 | 35 | 20 | 201 | 16 | 21 | 7 | 419 | 37 | 22 | 15 | 128 | 2 | 3 | 2 |
| 140-149 | 212 | 26 | 27 | 17 | 300 | 23 | 30 | 9 | 140 | 20 | 15 | 11 | 301 | 18 | 15 | 6 | 107 | 10 | 10 | 5 |
| 150-159 | 105 | 13 | 12 | 3 | 143 | 9 | 13 | 4 | 79 | 8 | 14 | 6 | 169 | 10 | 16 | 7 | 67 | 4 | 6 | 3 |
| 160-169 | 65 | 9 | 14 | 3 | 105 | 11 | 12 | 4 | 36 | 5 | 5 | 2 | 127 | 10 | 11 | 5 | 46 | 3 | 5 | 3 |
| 170-179 | 44 | 8 | 5 | 4 | 50 | 9 | 10 | 5 | 28 | 3 | 6 | 2 | 52 | 7 | 13 | 4 | 21 | 3 | 3 | 2 |
| 180-189 | 22 | 5 | 6 | 4 | 28 | 9 | 7 | 3 | 8 | 1 | 2 | 0 | 29 | 2 | 1 | 1 | 13 | 1 | 2 | 1 |
| 190+ | 26 | 7 | 12 | 6 | 38 | 9 | 9 | 4 | 11 | 4 | 5 | 2 | 26 | 7 | 5 | 5 | 17 | 6 | 5 | 5 |
| UNKNOWN | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| TOTAL | 1117 | 126 | 130 | 59 | 1754 | 155 | 152 | 65 | 936 | 93 | 101 | 44 | 1868 | 130 | 123 | 61 | 573 | 36 | 43 | 27 |

(1) NUMBER OF PERSONS
(2) NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
(3) NUMBER OF DEATHS
(4) NUMBER OF CHD DEATHS

RATE PER 1000 FOR 12 YEARS* BY LEVEL OF SYSTOLIC BLOOD PRESSURE.

| | MYOCARDIAL INFARCTION OR CHD DEATH | | | | | DEATH ALL CAUSES | | | | | CHD DEATH | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBP | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) |
| <110 | 53 | 124 | 81 | 33 | 102 | 79 | 99 | 108 | 67 | 102 | 26 | 99 | 54 | 17 | 102 |
| 110-119 | 53 | 99 | 60 | 67 | 100 | 53 | 64 | 89 | 89 | 166 | 8 | 17 | 22 | 39 | 100 |
| 120-129 | 102 | 78 | 129 | 82 | 37 | 80 | 58 | 88 | 65 | 37 | 44 | 26 | 46 | 33 | 25 |
| 130-139 | 105 | 96 | 94 | 119 | 22 | 105 | 93 | 124 | 71 | 33 | 40 | 53 | 41 | 48 | 22 |
| 140-149 | 123 | 89 | 169 | 81 | 134 | 127 | 117 | 127 | 67 | 134 | 80 | 35 | 93 | 27 | 67 |
| 150-159 | 124 | 73 | 120 | 80 | 85 | 114 | 106 | 210 | 128 | 128 | 29 | 33 | 90 | 56 | 64 |
| 160-169 | 138 | 122 | 164 | 106 | 93 | 215 | 133 | 164 | 117 | 155 | 46 | 44 | 66 | 53 | 93 |
| 170-179 | 182 | 210 | 127 | 182 | 204 | 114 | 233 | 254 | 337 | 204 | 91 | 117 | 85 | 104 | 136 |
| 180-189 | 227 | 375 | 148 | 93 | 110 | 273 | 292 | 296 | 47 | 220 | 182 | 125 | 0 | 47 | 110 |
| 190+ | 269 | 276 | 431 | 363 | 504 | 462 | 276 | 538 | 260 | 420 | 231 | 123 | 215 | 260 | 420 |

(F) FRAMINGHAM
(A) ALBANY
(CG) CHICAGO-GAS
(CW) CHICAGO-WESTERN ELECTRIC
(T) TECUMSEH

* ADJUSTED FOR LENGTH OF FOLLOWUP SEE NOTES PRECEDING TABLE-8

TABLE-9
NUMBER OF PERSONS AND NUMBER OF SPECIFIED EVENTS BY LEVEL OF DIASTOLIC BLOOD PRESSURE (MM HG)

| | FRAMINGHAM | | | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DBP | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| <70 | 35 | 2 | 2 | 1 | 27 | 3 | 2 | 1 | 47 | 1 | 6 | 0 | 30 | 0 | 2 | 0 | 31 | 3 | 3 | 3 |
| 70-74 | 113 | 6 | 9 | 2 | 216 | 17 | 14 | 7 | 171 | 11 | 15 | 8 | 164 | 10 | 8 | 4 | 57 | 0 | 0 | 0 |
| 75-79 | 89 | 6 | 6 | 2 | 93 | 10 | 7 | 3 | 93 | 9 | 6 | 1 | 161 | 7 | 5 | 2 | 53 | 1 | 3 | 1 |
| 80-84 | 264 | 25 | 25 | 12 | 614 | 40 | 33 | 13 | 310 | 30 | 32 | 14 | 465 | 30 | 29 | 14 | 125 | 6 | 6 | 2 |
| 85-89 | 127 | 13 | 14 | 5 | 147 | 14 | 16 | 9 | 78 | 10 | 9 | 5 | 237 | 20 | 16 | 8 | 61 | 4 | 6 | 4 |
| 90-94 | 212 | 32 | 28 | 14 | 310 | 24 | 30 | 11 | 149 | 18 | 18 | 10 | 398 | 26 | 23 | 12 | 114 | 6 | 8 | 4 |
| 95-99 | 88 | 14 | 11 | 7 | 52 | 4 | 4 | 1 | 21 | 2 | 4 | 2 | 110 | 6 | 6 | 2 | 36 | 1 | 1 | 1 |
| 100-104 | 97 | 15 | 14 | 7 | 162 | 14 | 16 | 6 | 39 | 7 | 4 | 2 | 159 | 12 | 12 | 8 | 45 | 5 | 5 | 4 |
| 105-109 | 29 | 2 | 3 | 1 | 21 | 5 | 5 | 3 | 4 | 1 | 1 | 0 | 43 | 1 | 6 | 1 | 16 | 3 | 1 | 1 |
| 110+ | 63 | 11 | 18 | 8 | 110 | 24 | 24 | 11 | 24 | 4 | 6 | 2 | 91 | 18 | 16 | 10 | 34 | 7 | 10 | 7 |
| UNKNOWN | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| TOTAL | 1117 | 126 | 130 | 59 | 1754 | 155 | 152 | 65 | 936 | 93 | 101 | 44 | 1868 | 130 | 123 | 61 | 573 | 36 | 43 | 27 |

(1) NUMBER OF PERSONS
(2) NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
(3) NUMBER OF DEATHS
(4) NUMBER OF CHD DEATHS

RATE PER 1000 FOR 12 YEARS* BY LEVEL OF DIASTOLIC BLOOD PRESSURE.

| | MYOCARDIAL INFARCTION OR CHD DEATH | | | | | DEATH ALL CAUSES | | | | | CHD DEATH | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DBP | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) |
| <70 | 57 | 130 | 25 | 0 | 138 | 57 | 86 | 151 | 90 | 138 | 29 | 43 | 0 | 0 | 138 |
| 70-74 | 53 | 92 | 76 | 82 | 0 | 80 | 76 | 104 | 66 | 0 | 18 | 38 | 55 | 33 | 0 |
| 75-79 | 67 | 125 | 115 | 59 | 27 | 67 | 88 | 76 | 42 | 81 | 22 | 38 | 13 | 17 | 27 |
| 80-84 | 95 | 76 | 115 | 87 | 69 | 95 | 63 | 122 | 84 | 69 | 45 | 25 | 53 | 41 | 23 |
| 85-89 | 102 | 111 | 152 | 114 | 94 | 110 | 127 | 137 | 91 | 141 | 39 | 71 | 76 | 46 | 94 |
| 90-94 | 151 | 90 | 143 | 88 | 75 | 132 | 113 | 143 | 78 | 100 | 66 | 41 | 79 | 41 | 50 |
| 95-99 | 159 | 90 | 113 | 74 | 40 | 125 | 90 | 226 | 74 | 40 | 80 | 22 | 113 | 25 | 40 |
| 100-104 | 155 | 101 | 213 | 102 | 159 | 144 | 115 | 121 | 102 | 159 | 72 | 43 | 61 | 68 | 127 |
| 105-109 | 69 | 278 | 296 | 31 | 268 | 103 | 278 | 296 | 188 | 89 | 34 | 167 | 0 | 31 | 89 |
| 110+ | 175 | 254 | 197 | 267 | 294 | 286 | 254 | 296 | 237 | 420 | 127 | 117 | 99 | 148 | 294 |

(F) FRAMINGHAM
(A) ALBANY
(CG) CHICAGO-GAS
(CW) CHICAGO-WESTERN ELECTRIC
(T) TECUMSEH

ADJUSTED FOR LENGTH OF FOLLOWUP SEE NOTES PRECEDING TABLE-8

TABLE-10
NUMBER OF PERSONS AND NUMBER OF SPECIFIED EVENTS BY
LEVEL OF CHOLESTEROL

|  | FRAMINGHAM |  |  |  | ALBANY |  |  |  | CHICAGO GAS |  |  |  | CHICAGO WESTERN ELECTRIC |  |  |  | TECUMSEH |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHOL | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| <190 | 189 | 15 | 20 | 6 | 302 | 20 | 21 | 9 | 125 | 10 | 12 | 6 | 204 | 9 | 9 | 4 | 87 | 1 | 7 | 0 |
| 190-204 | 168 | 15 | 13 | 7 | 226 | 11 | 20 | 5 | 85 | 6 | 6 | 3 | 159 | 5 | 12 | 4 | 62 | 3 | 3 | 2 |
| 205-219 | 138 | 9 | 18 | 8 | 224 | 15 | 21 | 10 | 118 | 7 | 13 | 4 | 205 | 11 | 14 | 6 | 90 | 3 | 5 | 3 |
| 220-234 | 188 | 18 | 11 | 4 | 233 | 9 | 13 | 3 | 129 | 14 | 14 | 7 | 232 | 10 | 11 | 4 | 89 | 2 | 2 | 2 |
| 235-249 | 119 | 16 | 13 | 6 | 221 | 27 | 18 | 9 | 128 | 11 | 16 | 4 | 278 | 16 | 16 | 7 | 77 | 3 | 1 | 1 |
| 250-264 | 103 | 13 | 23 | 8 | 157 | 15 | 12 | 3 | 122 | 13 | 6 | 3 | 188 | 15 | 15 | 8 | 64 | 8 | 8 | 5 |
| 265-279 | 66 | 15 | 12 | 9 | 121 | 19 | 10 | 6 | 77 | 8 | 8 | 5 | 160 | 16 | 14 | 7 | 35 | 2 | 4 | 1 |
| 280-294 | 52 | 11 | 6 | 5 | 86 | 11 | 8 | 4 | 58 | 8 | 9 | 3 | 126 | 11 | 6 | 4 | 21 | 4 | 3 | 3 |
| 295-309 | 32 | 3 | 3 | 1 | 49 | 10 | 8 | 6 | 36 | 6 | 6 | 3 | 79 | 6 | 5 | 3 | 23 | 4 | 4 | 4 |
| 310+ | 36 | 8 | 4 | 3 | 80 | 12 | 9 | 5 | 58 | 10 | 11 | 6 | 234 | 30 | 20 | 13 | 22 | 5 | 5 | 5 |
| UNKNOWN | 26 | 3 | 7 | 2 | 55 | 6 | 12 | 5 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| TOTAL | 1117 | 126 | 130 | 59 | 1754 | 155 | 152 | 65 | 936 | 93 | 101 | 44 | 1868 | 130 | 123 | 61 | 573 | 36 | 43 | 27 |

(1) NUMBER OF PERSONS
(2) NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
(3) NUMBER OF DEATHS
(4) NUMBER OF CHD DEATHS

RATE PER 1000 FOR 12 YEARS* BY LEVEL OF CHOLESTEROL.

|  | MYOCARDIAL INFARCTION OR CHD DEATH |  |  |  |  | DEATH ALL CAUSES |  |  |  |  | CHD DEATH |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHOL | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) |
| <190 | 79 | 77 | 95 | 60 | 16 | 106 | 81 | 114 | 60 | 115 | 32 | 35 | 57 | 26 | 0 |
| 190-204 | 89 | 57 | 84 | 42 | 69 | 77 | 103 | 84 | 102 | 69 | 42 | 26 | 42 | 34 | 46 |
| 205-219 | 65 | 78 | 70 | 72 | 48 | 130 | 109 | 130 | 92 | 79 | 58 | 52 | 40 | 40 | 48 |
| 220-234 | 96 | 45 | 129 | 58 | 32 | 59 | 65 | 129 | 64 | 32 | 21 | 15 | 64 | 23 | 32 |
| 235-249 | 134 | 142 | 102 | 78 | 56 | 109 | 95 | 148 | 78 | 19 | 50 | 47 | 37 | 34 | 19 |
| 250-264 | 126 | 111 | 126 | 108 | 179 | 223 | 89 | 58 | 108 | 179 | 78 | 22 | 29 | 57 | 112 |
| 265-279 | 227 | 183 | 123 | 135 | 82 | 182 | 96 | 123 | 118 | 163 | 136 | 58 | 77 | 59 | 41 |
| 280-294 | 212 | 149 | 163 | 118 | 272 | 115 | 108 | 184 | 64 | 204 | 96 | 54 | 61 | 43 | 204 |
| 295-309 | 94 | 238 | 197 | 103 | 248 | 94 | 190 | 197 | 85 | 248 | 31 | 143 | 99 | 51 | 248 |
| 310+ | 222 | 175 | 204 | 173 | 325 | 111 | 131 | 225 | 115 | 325 | 83 | 73 | 123 | 75 | 325 |

(F) FRAMINGHAM
(A) ALBANY
(CG) CHICAGO-GAS
(CW) CHICAGO-WESTERN ELECTRIC
(T) TECUMSEH

* ADJUSTED FOR LENGTH OF FOLLOWUP SEE NOTES PRECEDING TABLE-8

TABLE-11
NUMBER OF PERSONS AND NUMBER OF SPECIFIED EVENTS BY SMOKING HABIT

| | FRAMINGHAM | | | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SMOKING | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 0 | 138 | 13 | 14 | 7 | 306 | 13 | 13 | 4 | 113 | 5 | 7 | 3 | 359 | 12 | 12 | 8 | 76 | 1 | 1 | 1 |
| 1 | 106 | 6 | 2 | 1 | 198 | 12 | 14 | 4 | 138 | 4 | 4 | 0 | 220 | 14 | 11 | 5 | 82 | 4 | 4 | 3 |
| 2 | 154 | 9 | 9 | 4 | 245 | 18 | 14 | 8 | 78 | 6 | 7 | 3 | 175 | 15 | 15 | 8 | 50 | 2 | 3 | 2 |
| 3 | 78 | 10 | 13 | 7 | 78 | 4 | 8 | 2 | 28 | 0 | 1 | 0 | 97 | 3 | 3 | 1 | 28 | 1 | 2 | 1 |
| 4 | 106 | 13 | 10 | 5 | 75 | 4 | 3 | 1 | 54 | 3 | 2 | 1 | 175 | 15 | 11 | 6 | 54 | 4 | 5 | 3 |
| 5 | 326 | 43 | 45 | 15 | 460 | 40 | 48 | 17 | 350 | 41 | 49 | 19 | 679 | 58 | 56 | 27 | 150 | 11 | 11 | 6 |
| 6 | 200 | 31 | 35 | 19 | 368 | 56 | 44 | 21 | 173 | 34 | 31 | 18 | 112 | 11 | 11 | 5 | 128 | 13 | 17 | 11 |
| UNKNOWN | 9 | 1 | 2 | 1 | 24 | 8 | 8 | 8 | 2 | 0 | 0 | 0 | 51 | 2 | 4 | 1 | 5 | 0 | 0 | 0 |
| TOTAL | 1117 | 126 | 130 | 59 | 1754 | 155 | 152 | 65 | 936 | 93 | 101 | 44 | 1868 | 130 | 123 | 61 | 573 | 36 | 43 | 27 |

(1) NUMBER OF PERSONS
(2) NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
(3) NUMBER OF DEATHS
(4) NUMBER OF CHD DEATHS

RATE PER 1000 FOR 12 YEARS* BY SMOKING HABIT.

| | MYOCARDIAL INFARCTION OR CHD DEATH | | | | | DEATH ALL CAUSES | | | | | CHD DEATH | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SMOKING | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) |
| 0 | 94 | 50 | 52 | 45 | 19 | 101 | 50 | 73 | 45 | 19 | 51 | 15 | 31 | 30 | 19 |
| 1 | 57 | 71 | 34 | 86 | 70 | 19 | 82 | 34 | 67 | 70 | 9 | 24 | 0 | 31 | 52 |
| 2 | 58 | 86 | 91 | 116 | 57 | 58 | 67 | 106 | 116 | 86 | 26 | 38 | 46 | 62 | 57 |
| 3 | 128 | 60 | 0 | 42 | 51 | 167 | 120 | 42 | 42 | 102 | 90 | 30 | 0 | 14 | 51 |
| 4 | 123 | 62 | 66 | 116 | 106 | 94 | 47 | 44 | 85 | 132 | 47 | 16 | 22 | 46 | 79 |
| 5 | 132 | 101 | 139 | 115 | 105 | 138 | 122 | 166 | 111 | 105 | 46 | 43 | 64 | 54 | 57 |
| 6 | 155 | 177 | 233 | 133 | 145 | 175 | 139 | 212 | 133 | 190 | 95 | 67 | 123 | 60 | 123 |

(F) FRAMINGHAM
(A) ALBANY
(CG) CHICAGO-GAS
(CW) CHICAGO-WESTERN ELECTRIC
(T) TECUMSEH

* ADJUSTED FOR LENGTH OF FOLLOWUP SEE NOTES PRECEDING TABLE-8

SMOKING CODES:
0-NEVER
1-PAST
2-CIGAR OR PIPE
3- < 1/2 PACK
4- 1/2 PACK
5- 1 PACK
6- > 1 PACK

TABLE-12
NUMBER OF PERSONS AND NUMBER OF SPECIFIED EVENTS BY LEVEL OF RELATIVE WEIGHT.

| | FRAMINGHAM | | | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RELWT | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| <100 | 125 | 8 | 12 | 3 | 240 | 16 | 27 | 4 | 69 | 9 | 12 | 5 | 218 | 12 | 13 | 7 | 59 | 4 | 6 | 4 |
| 100-104 | 106 | 9 | 17 | 7 | 190 | 15 | 13 | 7 | 65 | 5 | 11 | 2 | 186 | 10 | 6 | 4 | 42 | 4 | 4 | 2 |
| 105-109 | 152 | 17 | 14 | 7 | 308 | 25 | 24 | 13 | 104 | 10 | 11 | 5 | 287 | 20 | 17 | 9 | 71 | 4 | 3 | 2 |
| 110-114 | 98 | 9 | 14 | 6 | 179 | 16 | 19 | 10 | 83 | 6 | 6 | 2 | 182 | 12 | 12 | 4 | 56 | 4 | 3 | 2 |
| 115-119 | 181 | 25 | 28 | 11 | 309 | 29 | 29 | 13 | 146 | 11 | 17 | 6 | 347 | 25 | 22 | 12 | 92 | 5 | 7 | 4 |
| 120-124 | 93 | 12 | 8 | 3 | 151 | 10 | 13 | 5 | 72 | 10 | 10 | 5 | 176 | 21 | 14 | 10 | 49 | 3 | 5 | 3 |
| 125-129 | 155 | 16 | 11 | 4 | 136 | 11 | 9 | 3 | 151 | 13 | 8 | 5 | 173 | 10 | 16 | 6 | 80 | 6 | 6 | 5 |
| 130-134 | 73 | 7 | 7 | 5 | 78 | 11 | 6 | 5 | 69 | 5 | 3 | 1 | 108 | 8 | 9 | 4 | 30 | 1 | 2 | 1 |
| 135-139 | 56 | 4 | 4 | 1 | 60 | 5 | 4 | 3 | 67 | 9 | 10 | 5 | 76 | 6 | 7 | 3 | 38 | 1 | 2 | 1 |
| 140+ | 78 | 19 | 15 | 12 | 98 | 17 | 6 | 2 | 110 | 15 | 13 | 8 | 101 | 5 | 7 | 2 | 56 | 4 | 5 | 3 |
| UNKNOWN | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 1117 | 126 | 130 | 59 | 1754 | 155 | 152 | 65 | 936 | 93 | 101 | 44 | 1863 | 130 | 123 | 61 | 573 | 36 | 43 | 27 |

(1) NUMBER OF PERSONS
(2) NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
(3) NUMBER OF DEATHS
(4) NUMBER OF CHD DEATHS

RATE PER 1000 FOR 12 YEARS* BY LEVEL OF RELATIVE WEIGHT.

| | MYOCARDIAL INFARCTION OR CHD DEATH | | | | | DEATH ALL CAUSES | | | | | CHD DEATH | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RELWT | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) | (F) | (A) | (CG) | (CW) | (T) |
| <100 | 64 | 78 | 154 | 74 | 97 | 96 | 131 | 206 | 80 | 145 | 24 | 19 | 86 | 43 | 97 |
| 100-104 | 85 | 92 | 91 | 73 | 136 | 160 | 80 | 200 | 44 | 136 | 66 | 43 | 36 | 29 | 68 |
| 105-109 | 112 | 95 | 114 | 94 | 80 | 92 | 91 | 125 | 80 | 60 | 46 | 49 | 57 | 42 | 40 |
| 110-114 | 92 | 104 | 86 | 89 | 102 | 143 | 124 | 86 | 89 | 77 | 61 | 65 | 29 | 30 | 51 |
| 115-119 | 138 | 109 | 89 | 97 | 78 | 155 | 109 | 138 | 86 | 109 | 61 | 49 | 49 | 47 | 62 |
| 120-124 | 129 | 77 | 164 | 161 | 87 | 86 | 100 | 164 | 107 | 146 | 32 | 39 | 82 | 77 | 87 |
| 125-129 | 103 | 94 | 102 | 78 | 107 | 71 | 77 | 63 | 125 | 107 | 26 | 26 | 39 | 47 | 89 |
| 130-134 | 96 | 164 | 86 | 100 | 48 | 96 | 90 | 51 | 112 | 95 | 68 | 75 | 17 | 50 | 48 |
| 135-139 | 71 | 97 | 159 | 107 | 38 | 71 | 78 | 177 | 124 | 75 | 18 | 58 | 88 | 53 | 38 |
| 140+ | 244 | 202 | 162 | 67 | 102 | 192 | 71 | 140 | 94 | 128 | 154 | 24 | 86 | 27 | 77 |

(F) FRAMINGHAM
(A) ALBANY
(CG) CHICAGO-GAS
(CW) CHICAGO-WESTERN ELECTRIC
(T) TECUMSEH

* ADJUSTED FOR LENGTH OF FOLLOWUP SEE NOTES PRECEDING TABLE-8

## MEANS AND STANDARD DEVIATIONS OF RISK FACTORS

Tables 13-15 give means and standard deviations for cases and non-cases of the specified events. The methods used to calculate the statistics given are standard methods. The number of persons used to calculate the statistics for any category are the number of persons in that category with known values of the risk factor. These numbers may be obtained from Tables 8-12.

TABLE-13
AVERAGES FOR CASES AND NON-CASES
OF MYOCARDIAL INFARCTION OR CHD DEATH

FRAMINGHAM

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 136.7962 | 144.5079 | 7.711771 | 19.74348 | 22.57600 | 20.08092 |
| DBP | 87.12614 | 91.33333 | 4.207198 | 12.25855 | 12.04857 | 12.23519 |
| CHOL | 224.6219 | 241.1707 | 16.54883 | 41.79785 | 48.87701 | 42.64941 |
| REL WT | 116.4077 | 120.8016 | 4.393918 | 15.15073 | 16.15377 | 15.26646 |
| SMOKING | 3.453713 | 4.056000 | .6022869 | 2.071444 | 1.956396 | 2.058865 |

ALBANY

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 133.8203 | 139.8065 | 5.986164 | 18.69987 | 24.74181 | 19.30758 |
| DBP | 85.18973 | 89.21935 | 4.029624 | 11.81323 | 15.64595 | 12.19892 |
| CHOL | 227.5665 | 244.9933 | 17.42684 | 43.68341 | 48.63856 | 44.13771 |
| REL WT | 113.7516 | 117.8065 | 4.054883 | 15.41434 | 17.31979 | 15.59167 |
| SMOKING | 3.233102 | 4.163265 | .9301636 | 2.260107 | 2.113365 | 2.248079 |

CHICAGO (GAS)

| | | | | | | |
|---|---|---|---|---|---|---|
| SBP | 131.7995 | 138.2366 | 6.437034 | 17.52159 | 22.23755 | 18.04093 |
| DBP | 82.03203 | 85.52688 | 3.494853 | 9.919398 | 10.87637 | 10.01772 |
| CHOL | 236.2183 | 249.2903 | 13.07205 | 45.53104 | 47.60106 | 45.73910 |
| REL WT | 120.8600 | 123.3656 | 2.505568 | 15.90707 | 19.66280 | 16.31545 |
| SMOKING | 3.501784 | 4.698925 | 1.197141 | 2.156454 | 1.718094 | 2.117224 |

CHICAGO (WESTERN ELECTRIC)

| | | | | | | |
|---|---|---|---|---|---|---|
| SBP | 134.5358 | 139.9077 | 5.371854 | 18.86202 | 21.78131 | 19.07914 |
| DBP | 86.84317 | 90.30769 | 3.464521 | 10.95647 | 13.05614 | 11.11524 |
| CHOL | 246.3474 | 266.3256 | 19.97823 | 53.47649 | 55.23022 | 53.59882 |
| REL WT | 115.2238 | 116.2636 | 1.039798 | 14.73528 | 12.71780 | 14.60481 |
| SMOKING | 3.054470 | 3.664063 | .6095924 | 2.129541 | 1.920783 | 2.115604 |

TECUMSEH

| | | | | | | |
|---|---|---|---|---|---|---|
| SBP | 138.9869 | 154.0556 | 15.06864 | 19.21527 | 32.40277 | 20.27555 |
| DBP | 86.46828 | 94.38889 | 7.920605 | 12.84250 | 15.95579 | 13.05508 |
| CHOL | 228.2318 | 265.1143 | 36.88251 | 39.68649 | 50.77619 | 40.43598 |
| REL WT | 119.1285 | 118.8889 | -.2396027 | 17.56524 | 19.87357 | 17.71538 |
| SMOKING | 3.458647 | 4.444444 | .9857978 | 2.197452 | 1.827480 | 2.176399 |

SEE NOTES PRECEDING TABLE-13

TABLE-14
AVERAGES FOR CASES AND NON-CASES
OF DEATH ALL CAUSES

FRAMINGHAM

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 136.3789 | 147.4385 | 11.05954 | 19.14301 | 25.04105 | 19.91494 |
| DBP | 87.01722 | 92.03077 | 5.013545 | 12.00223 | 13.63132 | 12.20184 |
| CHOL | 225.9039 | 231.0813 | 5.177375 | 43.02725 | 42.23016 | 42.93869 |
| REL WT | 116.8065 | 117.6385 | .8319772 | 15.06531 | 17.19924 | 15.32740 |
| SMOKING | 3.436735 | 4.171875 | .7351403 | 2.070040 | 1.928278 | 2.054259 |

ALBANY

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 133.5109 | 143.2450 | 9.734102 | 18.43150 | 25.92373 | 19.18866 |
| DBP | 85.02936 | 91.02649 | 5.997133 | 11.65648 | 16.40282 | 12.13626 |
| CHOL | 228.5959 | 234.6500 | 6.054105 | 43.98653 | 48.58589 | 44.38119 |
| REL WT | 114.2964 | 112.1333 | -2.163102 | 15.78337 | 13.77950 | 15.62249 |
| SMOKING | 3.245902 | 4.041667 | .7957650 | 2.266767 | 2.085162 | 2.252294 |

CHICAGO (GAS)

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 131.4766 | 140.3960 | 8.919393 | 17.15497 | 23.42139 | 17.93088 |
| DBP | 82.09701 | 84.71287 | 2.615865 | 9.821253 | 11.70157 | 10.03942 |
| CHOL | 236.5832 | 245.2376 | 8.654390 | 45.65874 | 47.21189 | 45.82755 |
| REL WT | 121.2683 | 119.7921 | -1.476184 | 15.99040 | 18.89620 | 16.32625 |
| SMOKING | 3.507803 | 4.554455 | 1.046652 | 2.159560 | 1.785919 | 2.122622 |

CHICAGO (WESTERN ELECTRIC)

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 134.4888 | 140.8780 | 6.389275 | 18.79565 | 22.51578 | 19.06221 |
| DBP | 86.80173 | 91.08943 | 4.287702 | 10.90728 | 13.53623 | 11.09922 |
| CHOL | 247.4406 | 251.8525 | 4.411839 | 53.94349 | 52.12424 | 53.82720 |
| REL WT | 115.1317 | 117.6098 | 2.478040 | 14.65195 | 13.74870 | 14.59417 |
| SMOKING | 3.055359 | 3.697479 | .6421197 | 2.127187 | 1.937824 | 2.115391 |

TECUMSEH

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 138.9489 | 152.0698 | 13.12090 | 19.27961 | 30.41021 | 20.31078 |
| DBP | 86.39887 | 93.95349 | 7.554623 | 12.75934 | 16.20986 | 13.04478 |
| CHOL | 228.9432 | 250.0238 | 21.08063 | 39.43145 | 57.74565 | 41.02810 |
| REL WT | 119.1415 | 118.7674 | -.3740676 | 17.35988 | 21.69797 | 17.71520 |
| SMOKING | 3.441905 | 4.488372 | 1.046467 | 2.199704 | 1.791143 | 2.172028 |

SEE NOTES PRECEDING TABLE-13

TABLE-15
AVERAGES FOR CASES AND NON-CASES
OF CHD DEATH

FRAMINGHAM

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 137.0161 | 149.3220 | 12.30597 | 19.73463 | 24.96442 | 20.04035 |
| DBP | 87.28639 | 93.23729 | 5.950899 | 12.16343 | 13.47583 | 12.23517 |
| CHOL | 225.7466 | 239.9298 | 14.18321 | 42.85882 | 42.75882 | 42.85369 |
| REL WT | 116.6285 | 121.8305 | 5.201964 | 15.06445 | 18.86445 | 15.28543 |
| SMOKING | 3.488571 | 4.120690 | .6321182 | 2.064813 | 2.026817 | 2.062872 |

ALBANY

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 134.0806 | 141.3385 | 7.257845 | 19.06944 | 25.32062 | 19.33370 |
| DBP | 85.35566 | 90.49231 | 5.136647 | 12.07781 | 15.37258 | 12.21397 |
| CHOL | 228.6650 | 240.8333 | 12.16829 | 44.14155 | 49.93154 | 44.35554 |
| REL WT | 114.0819 | 114.8615 | .7795907 | 15.74629 | 12.30330 | 15.63355 |
| SMOKING | 3.280932 | 4.228070 | .9471377 | 2.263709 | 2.035555 | 2.256677 |

CHICAGO (GAS)

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 132.0639 | 140.0455 | 7.981553 | 17.89323 | 21.30832 | 18.06464 |
| DBP | 82.23206 | 85.36364 | 3.131574 | 10.06516 | 9.738657 | 10.05036 |
| CHOL | 236.9451 | 249.1136 | 12.16857 | 45.40567 | 53.94666 | 45.83385 |
| REL WT | 120.9518 | 124.2955 | 3.343661 | 16.03052 | 21.41243 | 16.31732 |
| SMOKING | 3.560674 | 4.840909 | 1.280235 | 2.149953 | 1.669747 | 2.130181 |

CHICAGO (WESTERN ELECTRIC)

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 134.6726 | 141.9508 | 7.278224 | 18.89733 | 24.02043 | 19.08427 |
| DBP | 86.90651 | 92.36066 | 5.454145 | 11.00937 | 13.73321 | 11.10788 |
| CHOL | 247.2787 | 261.2833 | 14.00466 | 53.73269 | 55.25169 | 53.78146 |
| REL WT | 115.2588 | 116.3934 | 1.134658 | 14.66291 | 12.78316 | 14.60581 |
| SMOKING | 3.081958 | 3.550000 | .4680421 | 2.122957 | 2.020446 | 2.119703 |

TECUMSEH

| VARIABLES | AVG, NONCASES | AVG, CASES | DIFFERENCE | SD, NONCASES | SD, CASES | POOLED SD |
|---|---|---|---|---|---|---|
| SBP | 139.1728 | 155.3333 | 16.16054 | 19.29206 | 35.49648 | 20.31629 |
| DBP | 86.54495 | 95.48148 | 8.936527 | 12.81465 | 17.40550 | 13.05924 |
| CHOL | 228.4926 | 272.4231 | 43.93043 | 39.61732 | 54.13404 | 40.36624 |
| REL WT | 119.0751 | 119.8889 | .8137973 | 17.55641 | 20.75560 | 17.71464 |
| SMOKING | 3.478743 | 4.370370 | .8916273 | 2.192160 | 1.944383 | 2.181395 |

SEE NOTES PRECEDING TABLE-13

## LOGISTIC ANALYSES

Tables 16-18, 28 give univariate logistic analyses and tables 19-27, 29-31 give multivariate logistic analyses for the various studies, endpoints, and risk factors (or set of risk factors).

The use of the logistic function in modeling the incidence of cardiovascular disease has been well-documented. Briefly, the model assumes that the conditional probability of a person developing disease given that he has specified values of the risk factors is $1/(1+\exp - (\alpha + \underline{\beta X})$, where $\underline{X}$ is a vector containing the values of the risk factors, $\alpha$ is an unknown parameter (the "intercept"), and $\underline{\beta}$ is a vector of unknown parameters. The unknown parameters are estimated using the method of Walker and Duncan (19). The parameters contained in $\underline{\beta}$ may be taken as the strength of the association between the risk factors and the event.

In order to assess the relative association of the risk factors and the event, standardized coefficients are calculated by multiplying the coefficient by the standard deviation of the risk factor with which it is associated. This allows assessment of the relative importance of the risk factors by ranking the standardized coefficients according to absolute magnitude.

To test whether a given coefficient is different from zero the coefficient is divided by its standard error. Under normality assumptions, the result is a standard normal deviate. These statistics are given in the column headed "T" in the tables.

The likelihood ratio statistic appearing on the multivariate logistic analyses is a test of the null hypothesis that the true values of the parameters of $\underline{\beta}$ are zero. An equivalent way of stating the null hypothesis is that it is a test of whether or not we obtain more information using the logistic function than if we had assumed all cases (and similarly all non-cases) have the same probability of occurring regardless of the values of the risk factors. The number of persons at risk and the number of events are not given on the tables. The number of persons used for the univariate analyses may be obtained from tables 8-12. This is the number of individuals with known values of the specified risk factor. The number of persons used for the multivariate analyses is given in table 6.

TABLE-16
UNIVARIATE LOGISTIC ANALYSIS
FOR MYOCARDIAL INFARCTION OR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0167967 | 0.0042255 | 3.98 | 137.6661 | 20.0809197 | 0.3372926 | 0.0848529 | -4.4210537 |
| DBP | 0.0255526 | 0.0071439 | 3.58 | 87.6007 | 12.2351854 | 0.3126407 | 0.0874072 | -4.3399816 |
| CHOL | 0.0080499 | 0.0020473 | 3.93 | 226.4876 | 42.6494136 | 0.3433219 | 0.0873172 | -3.9333593 |
| REL WT | 0.0181773 | 0.0060238 | 3.02 | 116.9033 | 15.2664626 | 0.2775034 | 0.0919627 | -4.2176449 |
| SMOKING | 0.1513003 | 0.0497774 | 3.04 | 3.5217 | 2.0588652 | 0.3115069 | 0.1024849 | -2.6318020 |

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0139599 | 0.0038350 | 3.64 | 134.3499 | 19.3075798 | 0.2695316 | 0.0740438 | -4.2398760 |
| DBP | 0.0233198 | 0.0060245 | 3.87 | 85.5462 | 12.1989239 | 0.2844767 | 0.0734920 | -4.3630230 |
| CHOL | 0.0081891 | 0.0018063 | 4.53 | 229.0948 | 44.1377127 | 0.3614484 | 0.0797271 | -4.2742173 |
| REL WT | 0.0152958 | 0.0049760 | 3.07 | 114.1109 | 15.5916665 | 0.2384871 | 0.0775838 | -4.1002928 |
| SMOKING | 0.1979391 | 0.0424235 | 4.67 | 3.3121 | 2.2480788 | 0.4449827 | 0.0953714 | -3.1121871 |

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0173096 | 0.0053926 | 3.21 | 132.4391 | 18.0409336 | 0.3122812 | 0.0972877 | -4.5381727 |
| DBP | 0.0316319 | 0.0100356 | 3.15 | 82.3793 | 10.0177208 | 0.3168800 | 0.1005341 | -4.8521015 |
| CHOL | 0.0058710 | 0.0022606 | 2.60 | 237.5171 | 45.7391005 | 0.2685330 | 0.1033983 | -3.6283789 |
| REL WT | 0.0091704 | 0.0065321 | 1.40 | 121.1090 | 16.3154481 | 0.1496200 | 0.1065742 | -3.3240586 |
| SMOKING | 0.3298495 | 0.0684207 | 4.82 | 3.6210 | 2.1172238 | 0.6983652 | 0.1448619 | -3.5754510 |

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0131594 | 0.0042798 | 3.07 | 134.9113 | 19.0791391 | 0.2510709 | 0.0816557 | -4.3924017 |
| DBP | 0.0251618 | 0.0074064 | 3.40 | 87.0856 | 11.1152415 | 0.2796791 | 0.0823236 | -4.8138379 |
| CHOL | 0.0061021 | 0.0015128 | 4.03 | 247.7292 | 53.5988153 | 0.3270629 | 0.0810822 | -4.1602728 |
| REL WT | 0.0048144 | 0.0061707 | 0.78 | 115.2961 | 14.6048134 | 0.0703132 | 0.0901224 | -3.1503916 |
| SMOKING | 0.1441261 | 0.0464593 | 3.10 | 3.0974 | 2.1156043 | 0.3049138 | 0.0982895 | -3.0651642 |

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0277818 | 0.0068613 | 4.05 | 139.9370 | 20.2755533 | 0.5632915 | 0.1391168 | -6.7449240 |
| DBP | 0.0387517 | 0.0113154 | 3.42 | 86.9668 | 13.0550801 | 0.5059065 | 0.1477229 | -6.1925577 |
| CHOL | 0.0185506 | 0.0039094 | 4.75 | 230.4965 | 40.4359780 | 0.7501104 | 0.1580805 | -7.2715374 |
| REL WT | -0.0007701 | 0.0097847 | -0.08 | 119.1134 | 17.7153841 | -0.0136420 | 0.1733395 | -2.6108346 |
| SMOKING | 0.2381515 | 0.0936950 | 2.54 | 3.5211 | 2.1763989 | 0.5183126 | 0.2039178 | -3.6414061 |

SEE NOTES PRECEDING TABLE-16

TABLE-17
UNIVARIATE LOGISTIC ANALYSIS
FOR DEATH ALL CAUSES

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0234568 | 0.0041367 | 5.67 | 137.6661 | 19.9149377 | 0.4671409 | 0.0823814 | -5.3452864 |
| DBP | 0.0301929 | 0.0070353 | 4.29 | 87.6007 | 12.2018371 | 0.3684091 | 0.0858439 | -4.7259727 |
| CHOL | 0.0026926 | 0.0021389 | 1.26 | 226.4876 | 42.9386909 | 0.1156186 | 0.0918410 | -2.6781557 |
| REL WT | 0.0035218 | 0.0060497 | 0.58 | 116.9033 | 15.3274000 | 0.0539794 | 0.0927268 | -2.4399601 |
| SMOKING | 0.1887049 | 0.0506102 | 3.73 | 3.5217 | 2.0542586 | 0.3876487 | 0.1039664 | -2.7562172 |

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0213788 | 0.0037192 | 5.75 | 134.3499 | 19.1886573 | 0.4102307 | 0.0713657 | -5.3100431 |
| DBP | 0.0330094 | 0.0058907 | 5.60 | 85.5462 | 12.1362624 | 0.4006106 | 0.0714906 | -5.2577978 |
| CHOL | 0.0029776 | 0.0019274 | 1.54 | 229.0948 | 44.3811853 | 0.1321492 | 0.0855384 | -3.0997154 |
| REL WT | -0.0092968 | 0.0057316 | -1.62 | 114.1109 | 15.6224931 | -0.1452389 | 0.0895420 | -1.3141421 |
| SMOKING | 0.1662595 | 0.0417789 | 3.98 | 3.3121 | 2.2522941 | 0.3744652 | 0.0940984 | -3.0069344 |

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0233987 | 0.0051524 | 4.54 | 132.4391 | 17.9308824 | 0.4195585 | 0.0923877 | -5.2848208 |
| DBP | 0.0241694 | 0.0098404 | 2.46 | 82.3793 | 10.0394199 | 0.2426469 | 0.0987918 | -4.1271313 |
| CHOL | 0.0039607 | 0.0022145 | 1.79 | 237.5171 | 45.8275473 | 0.1815110 | 0.1014848 | -3.0661577 |
| REL WT | -0.0056423 | 0.0065719 | -0.86 | 121.1090 | 16.3262555 | -0.0921179 | 0.1072938 | -1.4322706 |
| SMOKING | 0.2735452 | 0.0613059 | 4.46 | 3.6210 | 2.1226223 | 0.5806331 | 0.1301292 | -3.2244723 |

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0153500 | 0.0043184 | 3.55 | 134.9113 | 19.0622063 | 0.2926047 | 0.0823179 | -4.7583678 |
| DBP | 0.0304739 | 0.0074788 | 4.07 | 87.0856 | 11.0992246 | 0.3382366 | 0.0830090 | -5.3532694 |
| CHOL | 0.0014781 | 0.0015883 | 0.88 | 247.7292 | 53.8271969 | 0.0795612 | 0.0908776 | -3.0283014 |
| REL WT | 0.0112735 | 0.0062020 | 1.82 | 115.2961 | 14.5941724 | 0.1645271 | 0.0905134 | -3.9559930 |
| SMOKING | 0.1526482 | 0.0483879 | 3.15 | 3.0974 | 2.1153910 | 0.3229106 | 0.1023593 | -3.1748744 |

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0250499 | 0.0064887 | 3.86 | 139.9370 | 20.3107844 | 0.5087833 | 0.1317896 | -6.1357290 |
| DBP | 0.0376097 | 0.0106265 | 3.54 | 86.9668 | 13.0447776 | 0.4906098 | 0.1386197 | -5.8904339 |
| CHOL | 0.0110491 | 0.0035403 | 3.12 | 230.4965 | 41.0281008 | 0.4533228 | 0.1452502 | -5.1707880 |
| REL WT | -0.0012054 | 0.0090362 | -0.13 | 119.1134 | 17.7152047 | -0.0213544 | 0.1600774 | -2.3682864 |
| SMOKING | 0.2553391 | 0.0874750 | 2.92 | 3.5211 | 2.1720284 | 0.5546037 | 0.1899982 | -3.5235852 |

SEE NOTES PRECEDING TABLE-16

TABLE-18
UNIVARIATE LOGISTIC ANALYSIS
FOR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0243525 | 0.0054735 | 4.45 | 137.6661 | 20.0403541 | 0.4880319 | 0.1096911 | -6.3598977 |
| DBP | 0.0338270 | 0.0094584 | 3.58 | 87.6007 | 12.2351732 | 0.4138792 | 0.1157253 | -5.9331201 |
| CHOL | 0.0067028 | 0.0027641 | 2.42 | 226.4876 | 42.8536850 | 0.2872409 | 0.1184532 | -4.4558981 |
| REL WT | 0.0211245 | 0.0083425 | 2.53 | 116.9033 | 15.2854256 | 0.3228969 | 0.1275187 | -5.4040791 |
| SMOKING | 0.1612968 | 0.0719769 | 2.24 | 3.5217 | 2.0628721 | 0.3327346 | 0.1484792 | -3.5115376 |

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0160480 | 0.0054436 | 2.95 | 134.3499 | 19.3336951 | 0.3102680 | 0.1052456 | -5.4622122 |
| DBP | 0.0277866 | 0.0084505 | 3.29 | 85.5462 | 12.2139697 | 0.3393843 | 0.1032143 | -5.6937249 |
| CHOL | 0.0057499 | 0.0027582 | 2.08 | 229.0948 | 44.3555400 | 0.2550417 | 0.1223418 | -4.6563276 |
| REL WT | 0.0031319 | 0.0079337 | 0.39 | 114.1109 | 15.6335476 | 0.0489629 | 0.1240314 | -3.6130469 |
| SMOKING | 0.2043893 | 0.0674445 | 3.03 | 3.3121 | 2.2566769 | 0.4612406 | 0.1522004 | -4.1508300 |

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0202774 | 0.0071812 | 2.82 | 132.4391 | 18.0646373 | 0.3663039 | 0.1297254 | -5.7623065 |
| DBP | 0.0280432 | 0.0139530 | 2.01 | 82.3793 | 10.0503627 | 0.2818444 | 0.1402330 | -5.3575394 |
| CHOL | 0.0053976 | 0.0031361 | 1.72 | 237.5171 | 45.8338488 | 0.2473945 | 0.1437418 | -4.3200815 |
| REL WT | 0.0120562 | 0.0090912 | 1.33 | 121.1090 | 16.3173193 | 0.1967254 | 0.1483439 | -4.4873295 |
| SMOKING | 0.3783805 | 0.1058004 | 3.58 | 3.6210 | 2.1301811 | 0.8060190 | 0.2253741 | -4.6283085 |

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0168284 | 0.0057611 | 2.92 | 134.9113 | 19.0842703 | 0.3211574 | 0.1099457 | -5.7076069 |
| DBP | 0.0365184 | 0.0097927 | 3.73 | 87.0856 | 11.1078752 | 0.4056421 | 0.1087766 | -6.6484572 |
| CHOL | 0.0043588 | 0.0021947 | 1.99 | 247.7292 | 53.7814558 | 0.2344232 | 0.1180324 | -4.5111131 |
| REL WT | 0.0052394 | 0.0087769 | 0.60 | 115.2961 | 14.6058082 | 0.0765258 | 0.1281930 | -3.9876147 |
| SMOKING | 0.1090364 | 0.0652846 | 1.67 | 3.0974 | 2.1197027 | 0.2311248 | 0.1383839 | -3.7390508 |

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR | INTERCEPT |
|---|---|---|---|---|---|---|---|---|
| SBP | 0.0287025 | 0.0075390 | 3.81 | 139.9370 | 20.3162932 | 0.5831288 | 0.1531643 | -7.2008542 |
| DBP | 0.0422574 | 0.0125103 | 3.38 | 86.9668 | 13.0592368 | 0.5518500 | 0.1633753 | -6.8338802 |
| CHOL | 0.0212699 | 0.0044605 | 4.77 | 230.4965 | 40.3662440 | 0.8585845 | 0.1800546 | -8.3184299 |
| REL WT | 0.0025554 | 0.0109465 | 0.23 | 119.1134 | 17.7146376 | 0.0452674 | 0.1939139 | -3.3120954 |
| SMOKING | 0.2119275 | 0.1049992 | 2.02 | 3.5211 | 2.1813949 | 0.4622975 | 0.2290447 | -3.8343262 |

SEE NOTES PRECEDING TABLE-16

TABLE-19
MULTIPLE LOGISTIC ANALYSIS
FOR MYOCARDIAL INFARCTION OR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0170208 | 0.0044270 | 3.84 | 137.7163 | 20.1634022 | 0.3431967 | 0.0892634 |
| CHOL | 0.0068094 | 0.0021026 | 3.24 | 226.5528 | 42.6641910 | 0.2905164 | 0.0897057 |
| SMOKING | 0.1638873 | 0.0511368 | 3.20 | 3.5179 | 2.0586663 | 0.3373892 | 0.1052736 |
| CONSTANT | -6.6533843 | 0.8086923 | -8.23 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 37.6961

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0125312 | 0.0040962 | 3.06 | 134.1337 | 19.3630017 | 0.2426410 | 0.0793146 |
| CHOL | 0.0079926 | 0.0018803 | 4.25 | 229.0919 | 44.2111957 | 0.3533643 | 0.0831321 |
| SMOKING | 0.1875743 | 0.0427140 | 4.39 | 3.2896 | 2.2534354 | 0.4226865 | 0.0962533 |
| CONSTANT | -6.6635610 | 0.7427109 | -8.97 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 48.9251

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0187049 | 0.0056437 | 3.31 | 132.4679 | 18.0504622 | 0.3376322 | 0.1018713 |
| CHOL | 0.0047843 | 0.0022862 | 2.09 | 237.5460 | 45.7162563 | 0.2187186 | 0.1045153 |
| SMOKING | 0.3311022 | 0.0684348 | 4.84 | 3.6210 | 2.1172238 | 0.7010175 | 0.1448918 |
| CONSTANT | -7.2634068 | 1.0189350 | -7.13 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 45.1075

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0122172 | 0.0044212 | 2.76 | 135.0271 | 19.1672719 | 0.2341694 | 0.0847414 |
| CHOL | 0.0056931 | 0.0015578 | 3.65 | 248.0415 | 53.6779179 | 0.3055961 | 0.0836182 |
| SMOKING | 0.1332880 | 0.0466166 | 2.86 | 3.0958 | 2.1155547 | 0.2819781 | 0.0986201 |
| CONSTANT | -6.1646082 | 0.7533638 | -8.18 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 30.6321

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0273223 | 0.0073529 | 3.72 | 139.9005 | 20.2176837 | 0.5523926 | 0.1486593 |
| CHOL | 0.0197176 | 0.0041037 | 4.80 | 230.3748 | 40.5188455 | 0.7989361 | 0.1662781 |
| SMOKING | 0.2533258 | 0.1000088 | 2.53 | 3.5151 | 2.1748448 | 0.5509444 | 0.2175037 |
| CONSTANT | -12.5460850 | 1.7410496 | -7.21 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 43.0120

SEE NOTES PRECEDING TABLE-16

TABLE-20
MULTIPLE LOGISTIC ANALYSIS
FOR MYOCARDIAL INFARCTION OR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0246012 | 0.0074468 | 3.30 | 87.6125 | 12.2853205 | 0.3022340 | 0.0914862 |
| CHOL | 0.0067802 | 0.0021037 | 3.22 | 226.5528 | 42.6641910 | 0.2892716 | 0.0897527 |
| SMOKING | 0.1628127 | 0.0510103 | 3.19 | 3.5179 | 2.0586663 | 0.3351770 | 0.1050133 |
| CONSTANT | -6.4412862 | 0.8254876 | -7.80 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 34.1831

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0222069 | 0.0065110 | 3.41 | 85.4346 | 12.2720180 | 0.2725230 | 0.0799028 |
| CHOL | 0.0078307 | 0.0018813 | 4.16 | 229.0919 | 44.2111957 | 0.3462058 | 0.0831740 |
| SMOKING | 0.1934593 | 0.0428872 | 4.51 | 3.2896 | 2.2534354 | 0.4359481 | 0.0966435 |
| CONSTANT | -6.8693511 | 0.7514764 | -9.14 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 50.9511

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0368672 | 0.0103504 | 3.56 | 82.3951 | 10.0204825 | 0.3694272 | 0.1037163 |
| CHOL | 0.0047590 | 0.0023137 | 2.06 | 237.5460 | 45.7162563 | 0.2175651 | 0.1057721 |
| SMOKING | 0.3419802 | 0.0686411 | 4.98 | 3.6210 | 2.1172238 | 0.7240486 | 0.1453286 |
| CONSTANT | -7.8651544 | 1.1148899 | -7.05 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 46.8615

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0241556 | 0.0076721 | 3.15 | 87.1818 | 11.0941904 | 0.2679867 | 0.0851160 |
| CHOL | 0.0055469 | 0.0015584 | 3.56 | 248.0588 | 53.6978179 | 0.2978582 | 0.0836805 |
| SMOKING | 0.1387217 | 0.0467163 | 2.97 | 3.0981 | 2.1153588 | 0.2934461 | 0.0988217 |
| CONSTANT | -6.6073547 | 0.8117549 | -8.14 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 32.7085

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0399473 | 0.0123586 | 3.23 | 86.9628 | 13.0734399 | 0.5222486 | 0.1615699 |
| CHOL | 0.0190178 | 0.0040680 | 4.67 | 230.4362 | 40.5126822 | 0.7704632 | 0.1648074 |
| SMOKING | 0.2595568 | 0.0992027 | 2.62 | 3.5195 | 2.1755593 | 0.5646812 | 0.2158214 |
| CONSTANT | -12.0264231 | 1.7417384 | -6.90 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 39.8026

SEE NOTES PRECEDING TABLE-16

TABLE-21
MULTIPLE LOGISTIC ANALYSIS
FOR DEATH ALL CAUSES

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0274531 | 0.0044380 | 6.19 | 137.7163 | 19.9732049 | 0.5483269 | 0.0886408 |
| CHOL | 0.0004856 | 0.0022295 | 0.22 | 226.5528 | 42.9520136 | 0.0208558 | 0.0957620 |
| SMOKING | 0.2360365 | 0.0538096 | 4.39 | 3.5179 | 2.0528374 | 0.4845446 | 0.1104623 |
| CONSTANT | -6.9752784 | 0.8284597 | -8.42 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 54.6066

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0221201 | 0.0039365 | 5.62 | 134.1337 | 19.2297394 | 0.4253646 | 0.0756976 |
| CHOL | 0.0022310 | 0.0020002 | 1.12 | 229.0919 | 44.4598372 | 0.0991914 | 0.0889284 |
| SMOKING | 0.1528568 | 0.0428700 | 3.57 | 3.2896 | 2.2588888 | 0.3452865 | 0.0968385 |
| CONSTANT | -6.5675442 | 0.7420257 | -8.85 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 43.5602

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0250527 | 0.0053606 | 4.67 | 132.4679 | 17.9407218 | 0.4494631 | 0.0961738 |
| CHOL | 0.0028534 | 0.0022582 | 1.26 | 237.5460 | 45.8047244 | 0.1307005 | 0.1034383 |
| SMOKING | 0.2842337 | 0.0618285 | 4.60 | 3.6210 | 2.1226223 | 0.6033208 | 0.1312385 |
| CONSTANT | -7.3540269 | 0.9749321 | -7.54 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 46.9630

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0143562 | 0.0044871 | 3.20 | 135.0271 | 19.1592012 | 0.2750529 | 0.0859696 |
| CHOL | 0.0004815 | 0.0017789 | 0.27 | 248.0415 | 53.9160430 | 0.0259595 | 0.0959120 |
| SMOKING | 0.1515815 | 0.0486334 | 3.12 | 3.0958 | 2.1153520 | 0.3206482 | 0.1028767 |
| CONSTANT | -5.2661055 | 0.7697257 | -6.84 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 19.9539

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0234237 | 0.0067953 | 3.45 | 139.9005 | 20.2456710 | 0.4742278 | 0.1375747 |
| CHOL | 0.0112294 | 0.0037615 | 2.99 | 230.3748 | 41.1196500 | 0.4617484 | 0.1546724 |
| SMOKING | 0.2586843 | 0.0900658 | 2.87 | 3.5151 | 2.1703709 | 0.5614409 | 0.1954763 |
| CONSTANT | -9.6245116 | 1.4857093 | -6.48 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 29.9642

SEE NOTES PRECEDING TABLE-16

TABLE-22
MULTIPLE LOGISTIC ANALYSIS
FOR DEATH ALL CAUSES

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0351568 | 0.0074464 | 4.72 | 87.6125 | 12.2440380 | 0.4304610 | 0.0911740 |
| CHOL | 0.0006500 | 0.0022336 | 0.29 | 226.5528 | 42.9520136 | 0.0279172 | 0.0959395 |
| SMOKING | 0.2267407 | 0.0530742 | 4.27 | 3.5179 | 2.0528374 | 0.4654617 | 0.1089527 |
| CONSTANT | -6.2257518 | 0.8346874 | -7.46 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 39.0844

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0325978 | 0.0062775 | 5.19 | 85.4346 | 12.2188067 | 0.3983059 | 0.0767037 |
| CHOL | 0.0021065 | 0.0019986 | 1.05 | 229.0919 | 44.4598372 | 0.0936555 | 0.0888565 |
| SMOKING | 0.1610646 | 0.0430736 | 3.74 | 3.2896 | 2.2588888 | 0.3638269 | 0.0972985 |
| CONSTANT | -6.3737594 | 0.7501025 | -8.50 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 39.1445

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0284315 | 0.0100379 | 2.83 | 82.3951 | 10.0421237 | 0.2855128 | 0.1008018 |
| CHOL | 0.0029231 | 0.0022520 | 1.30 | 237.5460 | 45.8047244 | 0.1338914 | 0.1031542 |
| SMOKING | 0.2832277 | 0.0615291 | 4.60 | 3.6210 | 2.1226223 | 0.6011853 | 0.1306030 |
| CONSTANT | -6.3372038 | 1.0475846 | -6.05 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 33.7078

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0305215 | 0.0077367 | 3.95 | 87.1818 | 11.0822372 | 0.3382465 | 0.0857396 |
| CHOL | 0.0002697 | 0.0017861 | 0.15 | 248.0588 | 53.9357633 | 0.0145457 | 0.0963324 |
| SMOKING | 0.1594177 | 0.0488068 | 3.27 | 3.0981 | 2.1151549 | 0.3371931 | 0.1032340 |
| CONSTANT | -5.9766224 | 0.8277941 | -7.22 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 24.8955

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0380555 | 0.0112877 | 3.37 | 86.9628 | 13.0622860 | 0.4970917 | 0.1474435 |
| CHOL | 0.0106805 | 0.0037724 | 2.83 | 230.4362 | 41.1113791 | 0.4390895 | 0.1550904 |
| SMOKING | 0.2708083 | 0.0903723 | 3.00 | 3.5195 | 2.1711301 | 0.5879601 | 0.1962101 |
| CONSTANT | -9.5783912 | 1.4979716 | -6.39 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 29.4469

SEE NOTES PRECEDING TABLE-16

TABLE-23
MULTIPLE LOGISTIC ANALYSIS
FOR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0263034 | 0.0058077 | 4.53 | 137.7163 | 20.1172489 | 0.5291528 | 0.1168343 |
| CHOL | 0.0047436 | 0.0028318 | 1.68 | 226.5528 | 42.8671167 | 0.2033434 | 0.1213909 |
| SMOKING | 0.1952524 | 0.0744692 | 2.62 | 3.5179 | 2.0624768 | 0.4027035 | 0.1535910 |
| CONSTANT | -8.5086566 | 1.1144650 | -7.63 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 29.0507

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0139091 | 0.0061373 | 2.27 | 134.1337 | 19.3911565 | 0.2697134 | 0.1190098 |
| CHOL | 0.0054152 | 0.0029632 | 1.83 | 229.0919 | 44.4335018 | 0.2406160 | 0.1316653 |
| SMOKING | 0.1815517 | 0.0679347 | 2.67 | 3.2896 | 2.2622075 | 0.4107076 | 0.1536824 |
| CONSTANT | -7.2700125 | 1.1300258 | -6.43 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 16.1634

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0217760 | 0.0074900 | 2.91 | 132.4679 | 18.0737987 | 0.3935756 | 0.1353733 |
| CHOL | 0.0041068 | 0.0031318 | 1.31 | 237.5460 | 45.8108262 | 0.1881380 | 0.1434706 |
| SMOKING | 0.3791238 | 0.1051516 | 3.61 | 3.6210 | 2.1301811 | 0.8076023 | 0.2239919 |
| CONSTANT | -8.5857542 | 1.4056367 | -6.11 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 27.3491

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0155437 | 0.0059839 | 2.60 | 135.0271 | 19.1751536 | 0.2980523 | 0.1147431 |
| CHOL | 0.0037585 | 0.0022846 | 1.65 | 248.0415 | 53.8691513 | 0.2024697 | 0.1230669 |
| SMOKING | 0.0987027 | 0.0655485 | 1.51 | 3.0958 | 2.1196433 | 0.2092144 | 0.1389394 |
| CONSTANT | -6.8158180 | 1.0441777 | -6.53 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 11.7174

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| SBP | 0.0282266 | 0.0082089 | 3.44 | 139.9005 | 20.2629382 | 0.5719544 | 0.1663356 |
| CHOL | 0.0226543 | 0.0046401 | 4.88 | 230.3748 | 40.4493623 | 0.9163505 | 0.1876899 |
| SMOKING | 0.2288795 | 0.1145678 | 2.00 | 3.5151 | 2.1799656 | 0.4989494 | 0.2497540 |
| CONSTANT | -13.7007339 | 2.0102748 | -6.82 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 39.0571

SEE NOTES PRECEDING TABLE-16

TABLE-24
MULTIPLE LOGISTIC ANALYSIS
FOR CHD DEATH

FRAMINGHAM

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0341854 | 0.0098884 | 3.46 | 87.6125 | 12.2854724 | 0.4199833 | 0.1214840 |
| CHOL | 0.0048704 | 0.0028546 | 1.71 | 226.5528 | 42.8671167 | 0.2087821 | 0.1223679 |
| SMOKING | 0.1845189 | 0.0738122 | 2.50 | 3.5179 | 2.0624768 | 0.3805659 | 0.1522359 |
| CONSTANT | -7.8122592 | 1.1226518 | -6.96 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 21.4539

ALBANY

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0254338 | 0.0096258 | 2.64 | 85.4346 | 12.2907135 | 0.3125993 | 0.1183079 |
| CHOL | 0.0052293 | 0.0029593 | 1.77 | 229.0919 | 44.4335018 | 0.2323580 | 0.1314924 |
| SMOKING | 0.1888899 | 0.0682276 | 2.77 | 3.2896 | 2.2622075 | 0.4273083 | 0.1543449 |
| CONSTANT | -7.5726172 | 1.1404195 | -6.64 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 17.7064

CHICAGO (GAS)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0328645 | 0.0141575 | 2.32 | 82.3951 | 10.0528808 | 0.3303827 | 0.1423233 |
| CHOL | 0.0041549 | 0.0031683 | 1.31 | 237.5460 | 45.8108262 | 0.1903386 | 0.1451403 |
| SMOKING | 0.3849247 | 0.1053434 | 3.65 | 3.6210 | 2.1301811 | 0.8199592 | 0.2244005 |
| CONSTANT | -8.4154754 | 1.5433663 | -5.45 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 24.6737

CHICAGO (WESTERN ELECTRIC)

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0342502 | 0.0101617 | 3.37 | 87.1818 | 11.0911465 | 0.3798739 | 0.1127047 |
| CHOL | 0.0035354 | 0.0022913 | 1.54 | 248.0588 | 53.8889009 | 0.1905200 | 0.1234780 |
| SMOKING | 0.1072594 | 0.0657734 | 1.63 | 3.0981 | 2.1194224 | 0.2273280 | 0.1394017 |
| CONSTANT | -7.7013991 | 1.1143738 | -6.91 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 15.7513

TECUMSEH

| VARIABLE | COEFFICIENT | ST. ERROR OF COEF | T | MEAN OF VARIABLE | ST. DEV. OF VAR. | STANDARDIZED COEFFICIENT | STANDARDIZED ST. ERROR |
|---|---|---|---|---|---|---|---|
| DBP | 0.0439806 | 0.0139572 | 3.15 | 86.9628 | 13.0796266 | 0.5752494 | 0.1825551 |
| CHOL | 0.0220510 | 0.0046060 | 4.79 | 230.4362 | 40.4428818 | 0.8918077 | 0.1862808 |
| SMOKING | 0.2357226 | 0.1133516 | 2.08 | 3.5195 | 2.1806273 | 0.5140231 | 0.2471775 |
| CONSTANT | -13.4452001 | 2.0343991 | -6.61 | | | | |

LIKELIHOOD RATIO (CHI SQUARE, 3 D. F.) = 37.4083

SEE NOTES PRECEDING TABLE-16

## Actual and expected number of cases by decile of risk

Tables 25-27 give actual and expected number of events by decile of risk. Each population was used to estimate the parameters of a logistic function. Using the logistic parameters, each participant was assigned a risk score. The populations were then put in order of ascending risk scores and split into deciles of equal numbers. The number of events and expected number of events were then counted by decile. The expected number of events for a given decile is simply the sum of the risk scores for that decile. For the studies other than Framingham the procedure was done twice, once using the logistic parameters estimated using the study population, and once using the parameters estimated using the Framingham population. In order to compare these numbers with those obtained using the study logistic, adjustments for length of followup must be made. The adjustments were made by multiplying the expected number of cases using the Framingham logistic by the ratio of the length of study followup to that of Framingham. For example the expected numbers for Albany using the Framingham logistic were multiplied by 9.86/11.5. This linear extrapolation may slightly underestimate 12-year rates.

TABLE-25
ACTUAL AND EXPECTED NUMBER OF MYOCARDIAL INFARCTIONS OR CHD DEATHS
BY DECILE OF RISK, USING INDICATED MULTIVARIATE LOGISTIC.

SYSTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 3 | 4.5 | 8 | 5.5 | 9 | 4.7 | 0 | 3.2 | 0 | 1.9 | 4 | 5.3 | 4 | 5.3 | 0 | 1.7 | 0 | 0.3 |
| 2 | 7 | 6.3 | 6 | 7.5 | 3 | 6.6 | 6 | 4.5 | 7 | 2.8 | 7 | 7.6 | 9 | 7.0 | 1 | 2.4 | 0 | 0.6 |
| 3 | 3 | 7.6 | 10 | 9.2 | 10 | 8.2 | 3 | 5.4 | 1 | 3.8 | 9 | 9.3 | 6 | 8.3 | 0 | 2.9 | 1 | 0.9 |
| 4 | 10 | 8.8 | 6 | 10.7 | 6 | 9.7 | 3 | 6.5 | 3 | 5.8 | 9 | 10.8 | 11 | 9.4 | 3 | 3.4 | 1 | 1.2 |
| 5 | 14 | 10.0 | 7 | 12.4 | 13 | 11.4 | 10 | 7.5 | 8 | 7.8 | 6 | 12.6 | 2 | 10.6 | 0 | 4.0 | 2 | 1.7 |
| 6 | 11 | 11.4 | 16 | 14.1 | 11 | 13.2 | 8 | 8.6 | 10 | 9.4 | 16 | 14.6 | 19 | 12.0 | 3 | 4.5 | 3 | 2.3 |
| 7 | 17 | 13.4 | 16 | 16.2 | 17 | 15.4 | 12 | 9.6 | 16 | 10.9 | 11 | 16.9 | 11 | 13.6 | 5 | 5.2 | 5 | 3.1 |
| 8 | 16 | 15.4 | 12 | 18.8 | 10 | 17.9 | 20 | 11.1 | 13 | 12.7 | 20 | 19.9 | 19 | 15.6 | 2 | 5.9 | 5 | 4.3 |
| 9 | 18 | 18.3 | 29 | 22.9 | 29 | 22.3 | 12 | 13.6 | 18 | 15.8 | 22 | 24.3 | 24 | 18.5 | 9 | 7.1 | 3 | 6.1 |
| 10 | 24 | 27.3 | 32 | 34.5 | 34 | 32.8 | 19 | 19.1 | 17 | 22.1 | 23 | 36.5 | 22 | 26.8 | 12 | 10.2 | 15 | 14.3 |
| TOTAL | 123 | 123.0 | 142 | 151.8 | 142 | 142.2 | 93 | 89.1 | 93 | 93.0 | 127 | 157.8 | 127 | 127.1 | 35 | 47.3 | 35 | 34.8 |

DIASTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 3 | 4.8 | 8 | 5.7 | 7 | 4.5 | 0 | 3.3 | 0 | 1.8 | 2 | 5.9 | 2 | 5.1 | 0 | 1.6 | 0 | 0.3 |
| 2 | 7 | 6.6 | 7 | 7.8 | 7 | 6.4 | 4 | 4.6 | 3 | 2.9 | 8 | 8.2 | 8 | 6.9 | 0 | 2.3 | 0 | 0.6 |
| 3 | 6 | 7.8 | 5 | 9.5 | 7 | 8.0 | 4 | 5.5 | 7 | 3.9 | 11 | 9.9 | 9 | 8.1 | 1 | 2.9 | 0 | 1.0 |
| 4 | 6 | 9.1 | 12 | 11.0 | 8 | 9.5 | 7 | 6.5 | 4 | 5.5 | 4 | 11.6 | 8 | 9.3 | 1 | 3.4 | 3 | 1.4 |
| 5 | 9 | 10.3 | 7 | 12.5 | 12 | 11.2 | 8 | 7.3 | 6 | 7.5 | 10 | 13.2 | 9 | 10.5 | 3 | 3.8 | 1 | 1.7 |
| 6 | 20 | 11.5 | 12 | 14.3 | 7 | 13.1 | 10 | 8.4 | 11 | 9.3 | 8 | 15.1 | 9 | 11.9 | 4 | 4.3 | 3 | 2.3 |
| 7 | 13 | 13.2 | 15 | 16.6 | 19 | 15.5 | 10 | 9.4 | 11 | 11.0 | 20 | 17.5 | 14 | 13.6 | 2 | 5.1 | 4 | 3.3 |
| 8 | 17 | 15.3 | 16 | 19.3 | 11 | 18.2 | 17 | 10.5 | 12 | 12.6 | 18 | 20.3 | 23 | 15.6 | 5 | 5.7 | 7 | 4.3 |
| 9 | 20 | 18.2 | 21 | 23.1 | 27 | 22.3 | 12 | 12.7 | 19 | 15.6 | 23 | 24.6 | 21 | 18.7 | 6 | 6.8 | 3 | 6.4 |
| 10 | 22 | 26.3 | 39 | 33.5 | 37 | 33.2 | 21 | 17.6 | 20 | 22.9 | 23 | 35.9 | 24 | 27.4 | 13 | 9.4 | 14 | 13.6 |
| TOTAL | 123 | 123.1 | 142 | 153.3 | 142 | 141.9 | 93 | 85.8 | 93 | 93.0 | 127 | 162.2 | 127 | 127.1 | 35 | 45.3 | 35 | 34.9 |

(1) NUMBER OF ACTUAL EVENTS USING FRAMINGHAM COEFFICIENTS
(2) NUMBER OF EXPECTED EVENTS USING FRAMINGHAM COEFFICIENTS
(3) NUMBER OF ACTUAL EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION
(4) NUMBER OF EXPECTED EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION

SEE NOTES PRECEDING TABLE-25

TABLE-26
ACTUAL AND EXPECTED NUMBER OF DEATHS
BY DECILE OF RISK, USING INDICATED MULTIVARIATE LOGISTIC.

SYSTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 3 | 3.4 | 9 | 3.9 | 10 | 5.2 | 4 | 2.2 | 3 | 2.4 | 5 | 3.5 | 5 | 5.6 | 3 | 1.2 | 1 | 0.7 |
| 2 | 6 | 5.0 | 8 | 5.6 | 6 | 6.8 | 5 | 3.2 | 5 | 3.5 | 10 | 5.1 | 8 | 6.9 | 2 | 1.9 | 1 | 1.2 |
| 3 | 3 | 6.5 | 7 | 7.0 | 9 | 8.1 | 4 | 4.2 | 4 | 4.7 | 9 | 6.7 | 8 | 8.1 | 0 | 2.4 | 2 | 1.7 |
| 4 | 9 | 8.0 | 8 | 8.8 | 7 | 9.3 | 4 | 5.5 | 4 | 6.7 | 8 | 8.4 | 9 | 9.4 | 0 | 3.0 | 4 | 2.2 |
| 5 | 11 | 9.4 | 14 | 11.0 | 13 | 10.6 | 9 | 6.4 | 8 | 8.3 | 7 | 10.2 | 9 | 10.6 | 4 | 3.7 | 4 | 2.8 |
| 6 | 14 | 11.1 | 9 | 12.9 | 7 | 12.1 | 8 | 7.4 | 8 | 9.6 | 11 | 12.0 | 11 | 11.9 | 3 | 4.2 | 1 | 3.5 |
| 7 | 19 | 13.3 | 8 | 15.3 | 9 | 13.9 | 9 | 8.6 | 13 | 11.3 | 14 | 14.2 | 15 | 13.1 | 5 | 5.0 | 4 | 4.4 |
| 8 | 10 | 16.0 | 16 | 18.3 | 17 | 16.0 | 15 | 10.3 | 15 | 13.3 | 13 | 17.0 | 15 | 14.5 | 7 | 6.1 | 6 | 5.4 |
| 9 | 19 | 19.7 | 20 | 22.9 | 20 | 19.5 | 17 | 12.7 | 16 | 16.7 | 19 | 20.6 | 14 | 16.1 | 5 | 7.7 | 4 | 7.3 |
| 10 | 29 | 30.6 | 34 | 39.5 | 35 | 31.5 | 26 | 19.6 | 25 | 24.6 | 22 | 34.3 | 24 | 22.0 | 13 | 12.6 | 15 | 12.8 |
| TOTAL | 123 | 123.0 | 133 | 145.2 | 133 | 133.0 | 101 | 80.1 | 101 | 101.1 | 118 | 132.0 | 118 | 118.2 | 42 | 47.8 | 42 | 42.0 |

DIASTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 3 | 4.1 | 8 | 4.8 | 9 | 5.3 | 4 | 2.7 | 3 | 2.9 | 4 | 4.7 | 4 | 5.1 | 1 | 1.3 | 0 | 0.7 |
| 2 | 5 | 5.9 | 9 | 6.3 | 7 | 6.8 | 3 | 3.6 | 5 | 4.0 | 6 | 6.4 | 6 | 6.7 | 2 | 1.9 | 2 | 1.2 |
| 3 | 10 | 7.4 | 6 | 7.9 | 7 | 8.2 | 5 | 4.5 | 4 | 5.2 | 12 | 7.9 | 12 | 7.8 | 3 | 2.5 | 3 | 1.7 |
| 4 | 8 | 8.8 | 9 | 9.9 | 10 | 9.4 | 8 | 5.7 | 7 | 7.0 | 5 | 9.9 | 3 | 9.1 | 1 | 3.1 | 3 | 2.2 |
| 5 | 11 | 10.3 | 11 | 12.0 | 11 | 11.1 | 8 | 6.7 | 7 | 9.0 | 11 | 11.6 | 11 | 10.2 | 2 | 3.6 | 2 | 2.7 |
| 6 | 13 | 11.5 | 13 | 14.4 | 11 | 12.5 | 9 | 7.8 | 14 | 10.7 | 10 | 13.6 | 11 | 11.5 | 4 | 4.2 | 5 | 3.4 |
| 7 | 13 | 13.4 | 11 | 16.3 | 11 | 14.1 | 13 | 8.7 | 10 | 12.1 | 15 | 15.4 | 15 | 12.9 | 7 | 5.0 | 2 | 4.5 |
| 8 | 16 | 15.7 | 19 | 18.9 | 17 | 16.1 | 14 | 9.8 | 13 | 13.4 | 14 | 17.9 | 14 | 14.5 | 3 | 5.7 | 7 | 5.5 |
| 9 | 15 | 19.0 | 18 | 22.8 | 20 | 19.4 | 16 | 11.5 | 16 | 15.8 | 20 | 21.0 | 19 | 16.6 | 8 | 7.1 | 5 | 7.3 |
| 10 | 29 | 26.9 | 29 | 35.2 | 30 | 30.1 | 21 | 15.9 | 22 | 21.0 | 21 | 30.3 | 23 | 23.5 | 11 | 10.1 | 13 | 12.7 |
| TOTAL | 123 | 123.0 | 133 | 148.5 | 133 | 133.0 | 101 | 76.9 | 101 | 101.1 | 118 | 138.7 | 118 | 117.9 | 42 | 44.5 | 42 | 41.9 |

(1) NUMBER OF ACTUAL EVENTS USING FRAMINGHAM COEFFICIENTS
(2) NUMBER OF EXPECTED EVENTS USING FRAMINGHAM COEFFICIENTS
(3) NUMBER OF ACTUAL EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION
(4) NUMBER OF EXPECTED EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION

SEE NOTES PRECEDING TABLE-25

TABLE-27
ACTUAL AND EXPECTED NUMBER OF CHD DEATHS
BY DECILE OF RISK, USING INDICATED MULTIVARIATE LOGISTIC.

SYSTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 1 | 1.5 | 4 | 1.8 | 3 | 1.9 | 1 | 1.0 | 0 | 0.7 | 3 | 1.7 | 3 | 2.7 | 1 | 0.6 | 0 | 0.2 |
| 2 | 3 | 2.3 | 1 | 2.6 | 2 | 2.5 | 1 | 1.5 | 3 | 1.0 | 5 | 2.6 | 4 | 3.5 | 1 | 0.9 | 0 | 0.4 |
| 3 | 2 | 2.8 | 3 | 3.3 | 4 | 3.1 | 0 | 1.9 | 0 | 1.4 | 3 | 3.3 | 3 | 4.0 | 1 | 1.1 | 1 | 0.6 |
| 4 | 2 | 3.4 | 3 | 4.0 | 1 | 3.6 | 3 | 2.4 | 2 | 2.4 | 5 | 4.0 | 5 | 4.5 | 0 | 1.4 | 0 | 0.8 |
| 5 | 5 | 4.0 | 4 | 4.8 | 5 | 4.3 | 5 | 2.9 | 5 | 3.4 | 2 | 4.8 | 3 | 5.0 | 2 | 1.6 | 1 | 1.1 |
| 6 | 8 | 4.8 | 6 | 5.6 | 6 | 5.0 | 4 | 3.3 | 3 | 4.2 | 4 | 5.7 | 4 | 5.6 | 1 | 1.9 | 1 | 1.5 |
| 7 | 6 | 5.8 | 3 | 6.7 | 4 | 5.7 | 4 | 4.0 | 6 | 5.0 | 11 | 6.8 | 11 | 6.2 | 2 | 2.3 | 6 | 2.1 |
| 8 | 6 | 7.1 | 10 | 8.1 | 6 | 6.7 | 7 | 4.7 | 4 | 6.1 | 7 | 8.4 | 8 | 7.1 | 4 | 2.8 | 2 | 3.0 |
| 9 | 9 | 9.0 | 5 | 10.6 | 10 | 8.1 | 8 | 6.2 | 8 | 7.8 | 7 | 10.8 | 6 | 8.3 | 4 | 3.5 | 2 | 4.4 |
| 10 | 15 | 16.2 | 14 | 20.0 | 12 | 12.1 | 11 | 10.1 | 13 | 12.0 | 12 | 19.2 | 12 | 12.0 | 10 | 6.5 | 13 | 12.0 |
| TOTAL | 57 | 57.0 | 53 | 67.5 | 53 | 53.0 | 44 | 38.0 | 44 | 44.0 | 59 | 67.3 | 59 | 58.9 | 26 | 22.6 | 26 | 26.1 |

DIASTOLIC BLOOD PRESSURE, CHOLESTEROL, SMOKING

| | FRAMINGHAM | | ALBANY | | | | CHICAGO GAS | | | | CHICAGO WESTERN ELECTRIC | | | | TECUMSEH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DECILE | (1) | (2) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1 | 1 | 1.9 | 2 | 2.2 | 1 | 1.8 | 0 | 1.2 | 0 | 0.7 | 3 | 2.2 | 2 | 2.4 | 0 | 0.6 | 0 | 0.2 |
| 2 | 2 | 2.7 | 3 | 3.0 | 4 | 2.4 | 2 | 1.8 | 3 | 1.1 | 2 | 3.2 | 4 | 3.2 | 1 | 0.9 | 0 | 0.4 |
| 3 | 3 | 3.2 | 4 | 3.8 | 4 | 3.0 | 0 | 2.2 | 2 | 1.5 | 2 | 4.0 | 2 | 3.8 | 0 | 1.2 | 0 | 0.6 |
| 4 | 4 | 3.8 | 3 | 4.5 | 3 | 3.6 | 8 | 2.6 | 1 | 2.3 | 7 | 4.7 | 5 | 4.3 | 3 | 1.4 | 1 | 0.8 |
| 5 | 7 | 4.4 | 4 | 5.3 | 4 | 4.2 | 4 | 3.0 | 4 | 3.5 | 3 | 5.5 | 3 | 4.8 | 2 | 1.6 | 1 | 1.1 |
| 6 | 4 | 5.1 | 4 | 6.1 | 3 | 4.9 | 2 | 3.5 | 4 | 4.4 | 2 | 6.4 | 5 | 5.4 | 1 | 1.9 | 2 | 1.5 |
| 7 | 8 | 5.9 | 4 | 7.2 | 6 | 5.7 | 2 | 4.0 | 3 | 5.2 | 8 | 7.5 | 6 | 6.2 | 1 | 2.2 | 3 | 2.1 |
| 8 | 7 | 7.1 | 10 | 8.6 | 5 | 6.7 | 6 | 4.5 | 7 | 6.2 | 13 | 8.9 | 13 | 7.1 | 2 | 2.6 | 6 | 3.0 |
| 9 | 7 | 8.8 | 5 | 10.7 | 9 | 8.2 | 7 | 5.6 | 8 | 7.6 | 9 | 11.0 | 7 | 8.6 | 5 | 3.3 | 0 | 4.6 |
| 10 | 14 | 14.1 | 15 | 17.8 | 14 | 12.5 | 13 | 8.2 | 12 | 11.4 | 10 | 17.5 | 12 | 13.2 | 11 | 5.2 | 13 | 11.7 |
| TOTAL | 57 | 57.0 | 54 | 69.2 | 53 | 53.0 | 44 | 36.6 | 44 | 43.9 | 59 | 70.9 | 59 | 59.0 | 26 | 20.9 | 26 | 26.0 |

(1) NUMBER OF ACTUAL EVENTS USING FRAMINGHAM COEFFICIENTS
(2) NUMBER OF EXPECTED EVENTS USING FRAMINGHAM COEFFICIENTS
(3) NUMBER OF ACTUAL EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION
(4) NUMBER OF EXPECTED EVENTS USING COEFFICIENTS CALCULATED FOR STUDY POPULATION

SEE NOTES PRECEDING TABLE-25

## Summary tables of standardized logistic coefficients

Tables 28-29 are tables of standardized univariate and multivariate logistic coefficients, the calculation and purpose of which have already explained (see notes preceding table 16). The coefficients are given here in less precision for ease of comparison. For each coefficient in the studies other than Framingham a test statistic was calculated to test whether it differed significantly from the comparable coefficient for Framingham. Those which did were appropriately marked. The test statistic is the differences between the coefficients divided by the standard error of the difference. The standard error of the difference is calculated by taking the square root of the sum of the variance of the coefficients. Under appropriate normality assumptions this statistic is a standard normal deviate.

TABLE-28
STANDARDIZED UNIVARIATE LOGISTIC COEFFICIENTS
BY STUDY AND RISK FACTOR.

MYOCARDIAL INFARCTION OR CHD DEATH

| | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.3373 | 0.2695 | 0.3123 | 0.2511 | 0.5633 |
| DBP | 0.3126 | 0.2845 | 0.3169 | 0.2797 | 0.5059 |
| CHOL | 0.3433 | 0.3614 | 0.2685 | 0.3271 | 0.7501* |
| REL WT | 0.2775 | 0.2385 | 0.1496 | 0.0703 | -0.0136 |
| SMOKING | 0.3115 | 0.4450 | 0.6984* | 0.3049 | 0.5183 |

DEATH ALL CAUSES

| | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.4671 | 0.4102 | 0.4196 | 0.2926 | 0.5088 |
| DBP | 0.3684 | 0.4006 | 0.2426 | 0.3382 | 0.4906 |
| CHOL | 0.1156 | 0.1321 | 0.1815 | 0.0796 | 0.4533* |
| REL WT | 0.0540 | -0.1452 | -0.0921 | 0.1645 | -0.0214 |
| SMOKING | 0.3876 | 0.3745 | 0.5806 | 0.3229 | 0.5546 |

CHD DEATH

| | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.4880 | 0.3103 | 0.3663 | 0.3212 | 0.5831 |
| DBP | 0.4139 | 0.3394 | 0.2818 | 0.4056 | 0.5518 |
| CHOL | 0.2872 | 0.2550 | 0.2474 | 0.2344 | 0.8586** |
| REL WT | 0.3229 | 0.0490 | 0.1967 | 0.0765 | 0.0453 |
| SMOKING | 0.3327 | 0.4612 | 0.8060 | 0.2311 | 0.4623 |

* DIFFERS SIGNIFICANTLY FROM FRAMINGHAM (P<.05)
** DIFFERS SIGNIFICANTLY FROM FRAMINGHAM (P<.01)

SEE NOTES PRECEDING TABLE-28

TABLE-29
STANDARDIZED MULTIVARIATE LOGISTIC COEFFICIENTS
BY STUDY, EVENT, AND SPECIFIED SET OF RISK FACTORS.

MYOCARDIAL INFARCTION OR CHD DEATH

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.3432 | 0.2426 | 0.3376 | 0.2342 | 0.5524 |
| CHOL | 0.2905 | 0.3534 | 0.2187 | 0.3056 | 0.7989** |
| SMOKING | 0.3374 | 0.4227 | 0.7010* | 0.2820 | 0.5509 |

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| DBP | 0.3022 | 0.2725 | 0.3694 | 0.2680 | 0.5222 |
| CHOL | 0.2893 | 0.3462 | 0.2176 | 0.2979 | 0.7705* |
| SMOKING | 0.3352 | 0.4359 | 0.7240* | 0.2934 | 0.5647 |

DEATH ALL CAUSES

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.5483 | 0.4254 | 0.4495 | 0.2751* | 0.4742 |
| CHOL | 0.0209 | 0.0992 | 0.1307 | 0.0260 | 0.4617* |
| SMOKING | 0.4845 | 0.3453 | 0.6033 | 0.3206 | 0.5614 |

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| DBP | 0.4305 | 0.3983 | 0.2855 | 0.3382 | 0.4971 |
| CHOL | 0.0279 | 0.0937 | 0.1339 | 0.0145 | 0.4391* |
| SMOKING | 0.4655 | 0.3638 | 0.6012 | 0.3372 | 0.5880 |

CHD DEATH

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| SBP | 0.5292 | 0.2697 | 0.3936 | 0.2981 | 0.5720 |
| CHOL | 0.2033 | 0.2406 | 0.1881 | 0.2025 | 0.9164** |
| SMOKING | 0.4027 | 0.4107 | 0.8076 | 0.2092 | 0.4989 |

|  | FRAMINGHAM | ALBANY | CHICAGO GAS | CHICAGO W.E. | TECUMSEH |
|---|---|---|---|---|---|
| DBP | 0.4200 | 0.3126 | 0.3304 | 0.3799 | 0.5752 |
| CHOL | 0.2088 | 0.2324 | 0.1903 | 0.1905 | 0.8918** |
| SMOKING | 0.3806 | 0.4273 | 0.8200 | 0.2273 | 0.5140 |

* DIFFERS SIGNIFICANTLY FROM FRAMINGHAM ($P<.05$)
** DIFFERS SIGNIFICANTLY FROM FRAMINGHAM ($P<.01$)

SEE NOTES PRECEDING TABLE-28

## Summary statistics for goodness of fit

Table 30 gives summary statistics for goodness of fit of the logistic model. These are calculated as:

$$\sum_{i=1}^{10} (0_i - E_i)^2/E_i \quad \text{where}$$

$0_i$ = observed number of cases in the $i^{th}$ decile

$E_i$ = expected number of cases in the $i^{th}$ decile

While these statistics are not exactly distributed as a chi-square distribution, they do measure goodness of fit. If the statistic is small a good fit may be presumed, while a large number means a poor fit. If for a specified event and risk factor the statistic obtained using the Framingham logistic is large as compared with the statistic obtained using the study logistic, it can be concluded that the study logistic gives a better fit of the data than does the Framingham logistic. If they are similar in magnitude it may be concluded that the logistics fit equally well.

## Table 30

Goodness of fit statistics* for actual and expected numbers, by study, event, and set of risk factors.

### Myocardial Infarction or CHD Death

| | (A) | | (B) | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| Albany | 10.4 | 14.0 | 7.8 | 9.8 |
| Chicago-Gas | 15.5 | 15.5 | 9.0 | 6.4 |
| Chicago-W.E. | 11.5 | 16.6 | 17.2 | 7.5 |
| Tecumseh | 13.4 | 4.1 | 10.5 | 7.9 |

### Death from all causes

| | (A) | | (B) | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| Albany | 14.7 | 10.1 | 7.9 | 3.7 |
| Chicago-Gas | 9.7 | 2.8 | 9.5 | 2.4 |
| Chicago-W.E. | 12.7 | 1.3 | 9.4 | 7.5 |
| Tecumseh | 9.6 | 6.0 | 4.6 | 6.0 |

### CHD Death

| | (A) | | (B) | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| Albany | 11.4 | 4.2 | 6.7 | 3.3 |
| Chicago-Gas | 5.6 | 8.3 | 20.3 | 6.1 |
| Chicago-W.E. | 12.5 | 6.1 | 12.5 | 7.3 |
| Tecumseh | 4.7 | 10.8 | 12.3 | 9.6 |

(A) Systolic blood pressure, serum cholesterol, and smoking.
(B) Diastolic blood pressure, serum cholesterol, and smoking.
(1) Framingham logistic
(2) Study logistic

*See description on preceding page.

Table 31

Percentage of cases assigned to upper decile of risk by event and study

| Event, study | Systolic blood pressure, cholesterol, smoking | | Diastolic blood pressure, cholesterol, smoking | |
|---|---|---|---|---|
| | Framingham logistic | Study logistic | Framingham logistic | Study logistic |
| Myocardial infarction or CHD Death | | | | |
| Framingham | 19.5 | - | 17.9 | - |
| Albany | 22.5 | 23.9 | 27.5 | 26.1 |
| Chicago-Gas | 20.4 | 18.3 | 22.6 | 21.5 |
| Chicago-Western Electric | 18.1 | 17.3 | 18.1 | 18.9 |
| Tecumseh | 34.3 | 42.9 | 37.1 | 40.0 |
| Death, all causes | | | | |
| Framingham | 23.6 | - | 23.6 | - |
| Albany | 25.6 | 26.3 | 21.8 | 22.6 |
| Chicago-Gas | 25.7 | 24.8 | 20.8 | 21.8 |
| Chicago-Western Electric | 18.6 | 20.3 | 17.8 | 19.5 |
| Tecumseh | 31.0 | 35.7 | 26.2 | 31.0 |
| CHD Death | | | | |
| Framingham | 26.3 | - | 24.6 | - |
| Albany | 26.4 | 22.6 | 27.8 | 26.4 |
| Chicago-Gas | 25.0 | 29.5 | 29.5 | 27.3 |
| Chicago-Western Electric | 20.3 | 20.3 | 16.9 | 20.3 |
| Tecumseh | 38.5 | 50.0 | 42.3 | 50.0 |

## Table 32

Number of persons by ECG status

| Abnormality: | None | | Minor | | Major | | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Number |
| Framingham | 1018 | 91.1 | 51 | 4.6 | 48 | 4.3 | 0 | 1117 |
| Albany | 1583 | 90.4 | 126 | 7.2 | 43 | 2.5 | 2 | 1754 |
| Chicago-Gas | 880 | 94.0 | 34 | 3.6 | 22 | 2.4 | 0 | 936 |
| Chicago-W.E. | 1623 | 86.9 | 203 | 10.9 | 42 | 2.2 | 0 | 1868 |
| Tecumseh | 426 | 74.5 | 115 | 20.1 | 31 | 5.4 | 1 | 573 |

## Table 33

Standardized univariate and multivariate logistic coefficients (β) for ECG Abnormalities, by event and study.

Myocardial Infarction or CHD death

| | Univariate | | Multivariate | |
|---|---|---|---|---|
| | β | se(β) | β | se(β) |
| Framingham | .2953 | .0700 | .2736 | .0750 |
| Albany | .0427* | .0834 | .0756* | .0790 |
| Chicago-Gas | .2518 | .0765 | .2265 | .0857 |
| Chicago-W.E. | .1220* | .0803 | .0937* | .0819 |
| Tecumseh | .3187 | .1433 | .1158* | .1594 |

Death All Causes

| | β | se(β) | β | se(β) |
|---|---|---|---|---|
| Framingham | .4344 | .0649 | .4101 | .0695 |
| Albany | .2812 | .0644 | .2234 | .0693 |
| Chicago-Gas | .2134 | .0777 | .1738 | .0867 |
| Chicago-W.E. | .3166 | .0685 | .3027 | .0702 |
| Tecumseh | .4517 | .1258 | .3345 | .1339 |

CHD Death

| | β | se(β) | β | se(β) |
|---|---|---|---|---|
| Framingham | .4219 | .0810 | .3830 | .0873 |
| Albany | .2055 | .1019 | .1735* | .1071 |
| Chicago-Gas | .1969* | .1074 | .1244* | .1224 |
| Chicago-W.E. | .3667 | .0869 | .3444 | .0885 |
| Tecumseh | .4288 | .1552 | .2113* | .1738 |

*Not statistically significant at the p=.05 level.

Note: Multivariate analysis includes systolic blood pressure, serum cholesterol, smoking and relative weight.

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NOTE: Sections of the Framingham Monograph are listed under the heading PREVIOUS SECTIONS.

# PREVIOUS SECTIONS

The Framingham Study

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Tavia Gordon and William B. Kannel

Section 2. Follow-up to the eighth examination
Tavia Gordon

Section 3. Some characteristics of the Framingham cohort on the first 7 examinations by broad age groups
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Notes: Dewey Shurtleff, William P. Castelli, Lloyd E. Hawes, and Patricia M. McNamara

Section 4. Some characteristics of the Framingham cohort on the first 7 examinations by 5-year age groups
Dewey Shurtleff

Section 5. Bivariate correlations among some characteristics of the Framingham cohort at Exam 2
Dewey Shurtleff

Section 6. Smoothed average annual incidence rates by age at exam preceding event, and sex
Manning Feinleib

Section 7. Average two-year incidence rates by age at exam preceding event and sex, with total number of events and total population at risk
Manning Feinleib

Section 8. Two-year incidence by exam interval by age at Exam 1 and sex
Manning Feinleib

Criteria: William B. Kannel, William P. Castelli, and Patricia M. McNamara

Section 9. Population alive with specified events by sex, age and level of characteristic at exam
Dewey Shurtleff

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